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# AMERICAN ARTISAN and Hardware Record

Vol. 84. No. 6.

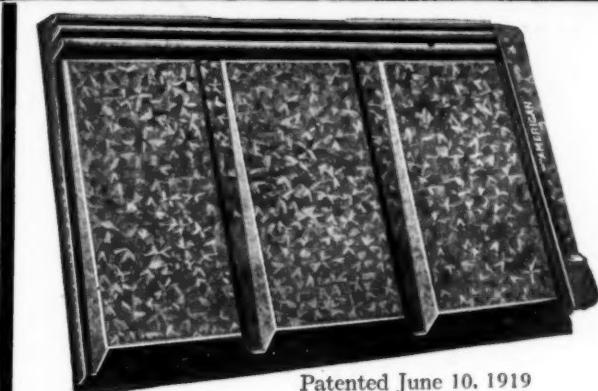
620 SOUTH MICHIGAN AVENUE, CHICAGO, AUGUST 5, 1922.

\$2.00 Per Year.

The MILCOR Sheet Metal Man says,

"The lightning flashed as lightning does  
And thunder crashed and pealed-  
But did not harm the house becuz  
The roofing was a shield"

AMERICAN  
Metal Tiles



Patented June 10, 1919

"Titelock"  
**AMERICAN**  
Metal Tiles

## Now Made of Zinc

As well as IX Terne Plate,  
Painted both sides, or galvanized  
after formed.

## Fire, Storm and Lightning Proof

(when properly grounded)

Let Us Send You Our Safety Roof Circular  
Showing different styles of metal shingles, tiles and roof trimmings

## MILWAUKEE CORRUGATING CO.

MILWAUKEE, WIS.

Branch Office and Factory at Kansas City, Mo.

Minneapolis Sales Office, Lumber Exchange



August 5, 1922.



*The*  
**COPPER-CLAD**  
*The World's Greatest Range*

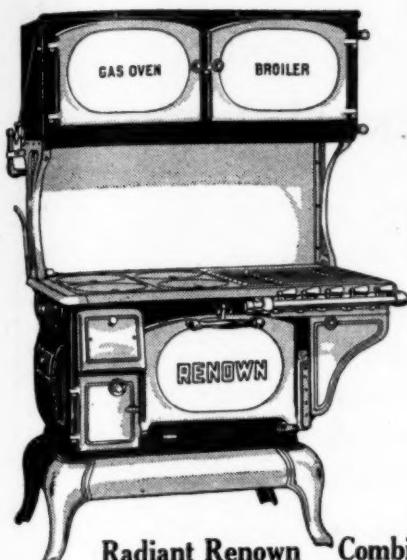
LINED WITH PURE COPPER  
WHERE OTHER RANGES RUST OUT



With Porcelain  
Enamel Trimmings



**COPPER-CLAD MALLEABLE RANGE CO.**  
ST. LOUIS, U.S.A.



**Radiant Renown Combination  
Ranges Sell on Sight**

1. Separate gas and coal ovens, and broiler.
  2. Extra large broiler equipped with top and bottom burner—*bakes, boils and broils*.
  3. Gas oven and broiler conveniently elevated—saves backache.
  4. Fully automatic gas dampers with chimney outlets.
  5. Back coal draft damper to chimney has neat side pull knob.
  6. Four gas and four coal openings.
  7. The famous RENOWN lid lift—handy with wood.
  8. Handsome black enamel and nickel trim. Also blue, grey and white porcelain enamel.
- We have other combination ranges. Write for complete descriptions and prices.



**Pacific Renown** With or Without Reservoir

makes an exceptionally handsome showing at our low price. When attractively displayed on your sales floors, this snappy range will prove the fastest seller in your whole assortment.

The Popular Renown is identical with Pacific but without nickel trim on front base and legs, ash pit and side feed doors and front reservoir cheek. Write for prices.

**RENNOW**

## A Dependable Range —At a Price

**T**HAT'S just what Madam Housewife is anxious to buy nowadays; and that is exactly what the wise Merchant is stocking.

In other words, Madam long ago ceased buying whatever pleased her, regardless of price.

The overwhelming buying trend today is for *something really good and reliable at a moderate price*, and the careful Merchant thinks twice before passing by such ranges as our *Radiant RENOWN Combination* and special *Popular and Pacific RENOWN Cast Ranges* either with or without reservoir.

**Radiant RENOWN Combination Ranges** have been specially constructed to meet the large demand recently developed for a combination range at a moderate price. The gas oven and broiler are elevated and easily accessible. Four gas openings and four coal openings, with separate coal and gas ovens and gas broiler; all of which may be operated independently or together.

**Loyal Combination Ranges** are like the Radiant, but smaller, for use in limited spaces. They are equipped with four gas and two coal openings.

These ranges are in every respect *strictly high grade*. They possess many new and unique features, appealing strongly to your customers.

**Our Special Pacific and Popular RENOWN Ranges** are sturdy and handsome in design. Of the high RENOWN quality which in the past has proven such a business builder for the Retailer. Yet quantity production, with certain economies of construction and design, permit *an exceedingly attractive price*.

*Place your sample order now.* You will need a large stock for Fall sales. Write at once for literature and our special proposition on these handsome, fast-selling ranges. Address Department "A."

**Independent Stove Company**  
Owosso, Michigan, U. S. A.

**HEATING & COOKING  
STOVES**

INDEPENDENT STOVE CO. OWOSO, MICH., U.S.A.

**RENNOW**

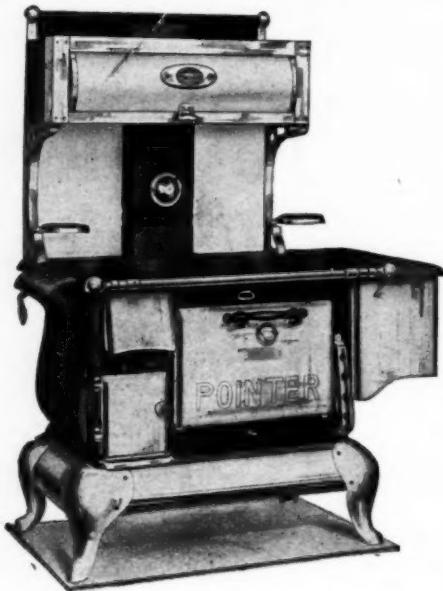
**PIPE & PIPELESS  
FURNACES**

## Specializing on this range has increased our sales from 7 thousand to 30 thousand a year

THIS enormous increase in business, and the jump which was made in eighteen months, is in itself significant that dealers selling Pointer Ranges are having good sales and better profits by specializing with us on this one size of range.

Every prospect that comes into your store wants a good range—one that will fill its working requirements, last long and continue to present an attractive and clean appearance. Most of these prospects want a standard size range—a range which the average home requires.

Pointer Ranges meet the average buyer's immediate approval because they possess all these qualities and yet sell at an extraordinarily low price.



POINTER Ranges have more quality built into them, they give better service for a longer time and retail at a lower price than others because of the following reasons:

We make only one size—This makes our production costs lower—It increases the efficiency of our mounters and molders.

It enables us to produce more in less time—

The saving we incur allows us to use better material—

It makes it possible for us to sell to you at a lower price.

You can specialize in selling Pointer specialized ranges—you can get a better profit on these better ranges and you can start now.

*A post card saying you are interested will bring complete information, catalog and prices. Write today—let us show you where our output of 100 Ranges a day goes*



**GOHMANN BROTHERS AND KAHLER**  
NEW ALBANY, INDIANA

*Founded 1880 by Daniel Stern*

Thoroughly Covers  
the Hardware, Stove,  
Sheet Metal, and  
Warm Air Heating and  
Ventilating Interests

# AMERICAN ARTISAN and Hardware Record

Address all communications  
and remittances to  
**AMERICAN ARTISAN  
AND  
HARDWARE RECORD**  
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CHICAGO, ILLINOIS

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CHICAGO, AUGUST 5, 1922.

\$2.00 Per Year.

## TIME TO SELL RANGES IS RIGHT NOW.

Not so many years ago the average person would have wondered as to the mental status of a merchant who advertised a sale of furs and fur coats early in August.

And yet, today we see the papers in metropolitan centers as well as in the smaller cities almost overflowing with advertisements of this class of merchandise, and the fact that these advertisements actually produce business in profitable volume is evidenced by the repetition of the announcements from year to year.

While it is true that fur garments are worn during a much longer period of the year than was the case a decade ago, still they are certainly not to be classed as summer merchandise in the strict sense of the term, but the fact remains that people have been educated to buy them much earlier—

That many more fur garments are being sold than in former years.

A kitchen range is an all-year-round piece of kitchen equipment. It is used three times each day of the year, and sometimes more frequently.

Is it not, therefore, reasonable that there should be no dead line on sales of kitchen ranges; that they should sell all the year?

This question is best answered by the fact that at least one manufacturer to our knowledge has actually accomplished the feat of inducing a considerable number of his merchant customers among hardware and furniture retailers to conduct a continuous selling cam-

paign on kitchen ranges all through since the Spring selling began, and that the general result has been more than satisfactory.

This manufacturer has demonstrated—with the co-operation of many retail merchants who are selling his ranges—that enough additional sales can be made by keeping after the consumer right along to make the effort profitable.

And certainly, kitchen ranges should begin to move from the retail store in good sized numbers in August rather than—as is now the case—late in September.

If women will buy fur coats in August—as they actually do—they can be induced to buy kitchen ranges in August.

It is simply a matter of getting ready for the business and of showing your prospective customers the advantages of making their selection a little earlier, such as less hurry, more attention being given to the setting up, getting the range into good working order before the cold weather comes, etc.

Get busy and start selling kitchen ranges this month!

Incidentally—

Read especially carefully every article in the section of this issue which is devoted to the discussion of selling plans for stoves and ranges.

You will receive inspiration from each one of these articles—and

In one of them there will be just the plan of which you can make good use.

## Random Notes and Sketches.

*By Sidney Arnold*

**P**AUL BRANDSTEDT, chairman Trade Development Committee, National Association of Sheet Metal Contractors, Washington, D. C., submits the following example of zero in tests:

Two fishermen were angling in a river when one suddenly dropped his rod.

"Say!" he ejaculated. "Did you see that feller fall off that cliff over there into the river?"

"Don't get excited, Bill," soothed the other. "Mebbe it was a movie actor makin' pictures."

"But, my stars! How kin we tell?"

"Well," counseled the judicious one, "if he drowns, he ain't."

\* \* \*

J. Edwin Ellis, Secretary and General Manager of the Independent Stove Company, tells the following story about a certain couple and the young son of one of their friends:

This couple, it seems, delighted in entertaining, but for some reason the lady of the house was not very efficient as a cook or overseer.

One evening when Ellis and the parents of the youngster were at dinner with the aforementioned couple the meat course had just been brought in.

After the first bite, the youngster was heard in a loud "aside" to his mother: "Oh, look mamma, daddy was right. He said that we would have chicken half done."

\* \* \*

W. E. Lamneck, who makes one-piece stovepipe elbows and all kinds of furnace pipes and fittings, as well as adjustable elbows for various purposes, has been having a vacation by automobile. He has been traveling by easy stages through Pennsylvania and New York, and stopped in to tell Warren Harding how the coal and rail strikes could be ended.

While Arthur P. was president of the National Association of Sheet Metal Contractors, Bill had to stick pretty close to home, but just as soon as the Indianapolis Convention was over and Arthur got back home, Bill began to shine up his auto and let it be known that somebody else would have to look after business, so when I was in Columbus recently Arthur was on the job and Bill was looking at the sights on the Great White Way in New York.

\* \* \*

Magnetism is of various kinds, says I. D. Allison, sales manager Copper Clad Malleable Range Company, St. Louis, Missouri.

He describes one of the kinds by means of this story:

A young man from the country called on a certain great manufacturer in his workshop, and the man of metals and machinery picked up a powerful magnet and said: "That magnet will draw 3 lb. of iron from a distance of two feet. There is no natural object on the face of the earth that has more power."

"I dunno about that," said the young countryman thoughtfully. "I know a natural object, wrapped in muslin and frills, that is drawing me every Sunday evening over three miles of ploughed fields!"

\* \* \*

I enjoyed the humor of this clipping sent me by R. L. Kahle of Quick Meal Range Company Division American Stove Company, St. Louis, Missouri:

Applicant: "And if I take the job, I am to get a raise in salary every year?"

Employer: "Yes, provided your work is satisfactory."

Applicant: "I thought there was some sort of a catch somewhere."

\* \* \*

An instance of misplaced sympathy is related by W. I. Buchanan, advertising manager Malleable Iron

Range Company, Beaver Dam, Wisconsin, as follows:

A young lady was crossing the ocean once and having been ill herself, started to sympathize with an Irishman in the second cabin, who apparently was having a very active time.

Laying her hand on the Irishman's shoulder she gently said:

"I am very sorry you are so ill, my good man. Your stomach is only weak, that's all."

"Wake stummick nawthin'," answered the Irishman. "Oi'm throwin' it as fur as anny man on this side of the ship, mum."

\* \* \*

I am indebted for the following laughable story to Sharon E. Jones, secretary Pennsylvania and Atlantic Seaboard Hardware Association, Pittsburgh, Pennsylvania.

A young fellow wrote to The Slocum Hardware Co., Ellwood City, Pennsylvania, who were selling razors at 50 cents each. This is the letter:

"Please send one of your razors, for which I enclose P. O. order for 50 cents.

"P. S.—I have forgotten to enclose the 50 cents, but no doubt a firm of your standing will send one."

E. C. Slocum was right on the job. Here's what he wrote:

"We beg to acknowledge your esteemed order, and have pleasure in sending the razor, which we trust you will like."

"P. S.—We have forgotten to enclose the razor, but no doubt a fellow with your cheek won't need one."

\* \* \*

### A Garden Ballad.

With a step so slow and stately,  
Walking leisurely, sedately,  
Came she to the sunny garden, with its  
radiant rosy bowers.  
This way, that way, coyly glancing  
At the blossoms so entrancing,  
Yes, she thought that no one saw her  
as she walked amid the flowers.

Oh, she thought that no one spied her,  
But that solace was denied her,  
For, alas, to that fair garden, edict stern  
her path had barred.  
So she fled in wildest panic,  
As she heard a voice volcanic  
Saying "Chase that pesky hen out! See,  
she's digging up the yard!"

# The Latest News About Stoves and Ranges

**Items and Discussions of Interest to the Manufacturer and Retailer of Kitchen Ranges, Heating Stoves and Accessories.**

## *Stove Plant Starts Operation in Rome, Georgia.*

Ten months after destruction by fire of the old Bowie Stove Works plant in Rome, Georgia, a new plant, said to be the most modern stove foundry in the South, is in operation under a new name, the Rome Stove & Range Company. The first heat in the new plant was run Saturday, July 22nd, and the foundry will be in operation steadily henceforth, the company having on hand orders sufficient for sixty days and prospects for continued steady sales. The plant will be at capacity operation with 60 men employed.

Immediately after the fire on September 24, 1921, that destroyed the Bowie foundry, John M. Berry, president of the company, announced that the plant would be rebuilt at once. Later consideration was given Birmingham and Chattanooga as probable locations of the new plant, but it was finally decided to remain at Rome and change the name of the concern to the Rome Stove & Range Company.

The new plant was built on the site of the old one and the building is absolutely fireproof, being constructed entirely of steel, glass, concrete and brick. The roof is asphalted sheet iron. The building is divided into three sections, one for storage of finished stoves and heaters, one for finishing and one for casting. The pig iron enters one end of the building, is melted, run into the molds, the castings conveyed automatically to the rattlers and finishing machines, assembled and set up into stoves and heaters and then conveyed into the storage room without a lost motion or backtracking anywhere. All of the equipment is motor driven with safety devices and is of most modern design.

Walls of the building are almost

solid glass with ample provision for ventilation that makes it one of the lightest and coolest working places in the South, notwithstanding that it is a foundry. The floors are concrete. The pig iron is hoisted to the cupola on a hydraulic elevator and the furnace is equipped with huge motor driven blower that provides for rapid melting of the metal. All of the patterns for molding are of aluminum and were made at the plant.

Four motor driven, double emery wheels, three large rattlers and other

machinery were set up by regularly employed workmen of the stove company.

The plant has a capacity of 100 complete stoves and heaters a day.

John M. Berry is president of the company. H. E. Henson is vice-president and superintendent of the plant. A. F. Selman is secretary-treasurer and general manager. The Rome Stove & Range Company and its predecessors is one of the oldest foundry concerns in the South, having been established about 50 years ago.

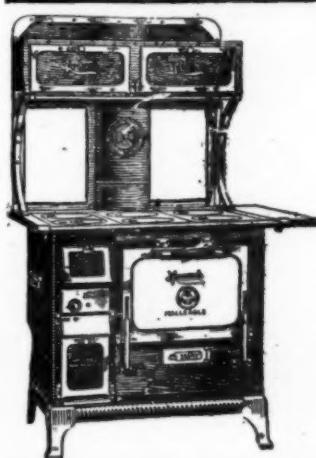
## *Ernest G. Ludwick Drills His Stove Salesmen So That They Know All About Their Ranges.*

*Demonstration Sales and Special Premiums Are Used to Good Effect in Boosting Kitchen Range Sales.*

**A** WAY out in the state of Washington there is a firm of hardware merchants which knows how to sell kitchen ranges at a profit, and one of the reasons for their success is that the two men who run the business both believe in advertising—they believe in it enough to make excellent use of it to boost their store and the various

lines they sell.

Another reason is that they stick to one line of ranges. The prospective purchaser has no chance to get confused by half a dozen different makes. When Mrs. Jones comes in to look at ranges, all the salesmen have to talk about is the Monarch, and they know how to do that very effectively, as evidenced



# A TON OF COAL FREE

You know the MONARCH malleable, vitreous enamel lined Range is the most economical and longest life range built. With each range sold up to December 31, we will give one ton of Wellington or Utah Coal, or Wood, or its equivalent (\$16.50) in any merchandise you may desire.

Part of Newspaper Advertisement Published in 1921 by the Ludwick-Wuest Company, Sedro-Woolley, Washington, in Which a Ton of Coal is Offered With Each Monarch Range Sold.

from the following statement of Ernest G. Ludwick, President of the Ludwick-Wuest Company, Sedro-Woolley, Washington, a city of 3,000 inhabitants.

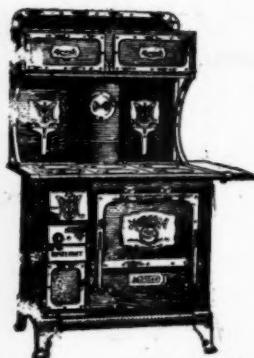
"During the years I spent as a traveling salesman I found that the dealers who were doing the range business in the various towns in the territory I covered were people who stuck to one line of ranges. Consequently when Mr. Wuest and I entered the retail business the first

show the line in detail.

Our sales people are schooled so that they are familiar with every detail of the construction of the Monarch range, and as much as possible with the details of ranges with which we have to compete. We make considerable use of the factory's aluminum ware demonstrations and find them to be of material help.

"Our town has about 3,000 population and we find that a vigorous

## Monarch Cooking Demonstration SALE



**Monarch**  
MALLEABLE  
The Stay Satisfactory Range

Lunch Served Daily From 2 to 5 P. M.

Part of Newspaper Advertisement Published by the Ludwick-Wuest Company, Sedro-Woolley, Washington, in Which Offer of Aluminum Ware is Made.

thing we did was to clean up the tag ends of the three lines of ranges which the store had been selling and to take on the Monarch line.

"We arrange a straight line of ranges down one side of the center of the store, this line containing nine ranges. We show one each of the four sizes of square ranges and one each of the three sizes of reservoir ranges which we carry, the balance of the line being whatever is convenient. We sample both white enamel and black ranges, so as to



\$10.00 Set FREF

This Splendid set of Aluminum ware FREE with each MONARCH Malleable Range sold Demonstration Week, October 8 to 13, inclusive.

Trade in your old stove as part payment on a MONARCH

Rust-proof Top, Triple Walls throughout, Steel-Asbestos-Steel, Duplex Draft. Fire always under control.

The inside Flues of the new MONARCH is lined with Viterous Enamel throughout. Positively cannot rust inside. Only range with this feature—Come and see it.

demonstration held in the fall during which time we give away a set of aluminum ware or Pyrex cooking ware or a ton of coal with a range is a great stimulant to our range business. During the first demonstration we sold only seven ranges during the week. The following year we sold seventeen ranges during the week and our sales have increased correspondingly.

"When one of our sales force shows a customer a range he goes

over every feature carefully, talking only Monarch and showing in what way the Monarch is superior to other ranges. If this sales person is not able to close the sale, if possible, the customer is passed on to someone else. If the sale cannot be closed at that time a record is kept of the name and address of the person and as soon as possible someone from the store visits the customer. At the same time the factory is working on the customer through their sales promotion department and the combined efforts of both the factory and ourselves usually land the sale.

"I can not be too emphatic in my statement that in my opinion any dealer makes a mistake in trying to carry more than one line of ranges as I do not think there are enough sales lost to pay a profit on the additional investment of two or three different lines of ranges."

### Nye Stove & Foundry Company Moves Into Larger Quarters.

The Nye Stove & Furnace Company has moved to 304 South Third Street, Minneapolis, Minnesota. The new location enables the company to bring under one roof the office, warehouse and shop. In this move, and result, the company is in far better position to handle the steady growth and development of the business. President Nye states that orders are increasing, and that the entire force is constantly busy to keep up with the increase.

### Borden Stove Company Moves Offices to New Location.

The general offices and show rooms of the Borden Stove Company were moved, August 1st, from 1313 Arch Street to 1026 Arch Street (second floor), Philadelphia, Pennsylvania.

In the new location, the Company keeps the daylight feature of its showrooms where it has on display the latest improved types of warm air heaters; coal and combustion ranges; heating stoves for coal,

wood, oil, and gas; tank heaters and laundry stoves; gas ranges and water heaters.

The Borden Stove Company is an exclusively wholesale house,

catering only to the trade, and its showrooms are for the convenience of the dealer's customers, who may select from a large and attractive assortment.

## Parlin Says Something Really Worth While for the Merchant Who Sells Gas Ranges.

*Gas Companies Are on Fair Competitive Basis with Regular Retail Distributors.*

IN the following excerpts from a very interesting address before the Third Annual Convention of the American Gas Association by Charles Coolidge Parlin, Manager of the Division of Commercial Research of the Curtis Publishing Company, will be found a number of useful suggestions for the hardware merchant who is considering the sale of gas ranges, and as this line is becoming a real profitable one for the regular retailer it will be worth your while to read this article:

During the war there was a very great increase in the number of people with incomes of the larger type. For example, from 1915 to 1919 there were more than ten times as many people who had incomes from three to four thousand dollars; and seven and one-half times as many people with incomes of four to five thousand dollars.

*We can not escape the conclusion that as a result of this period there is bound to be a very much larger number of people with permanently higher incomes ready to support the*

gas industry.

The great significance of this fact is that this market reads, thinks and discriminates. Purchasers are price conscious. They want quality which will satisfy discriminating taste at a price which appeals to sound buying judgment.

A second important change is one affecting the retailer and wholesaler. Costs of doing business are increasing. The only solution is to increase volume. If volume is increased two difficulties are encountered. First, the extra volume must be handled in the same space, second the extra volume must be handled without increasing the number of employees.

It was natural that the original sales agency for appliances should be the gas company. As sales opportunity became more apparent independent dealers entered the field and the gas companies frequently have questioned the advisability of the sale of appliances through these dealer outlets. The gas companies have felt a responsibility for the

**How to keep cool while canning**

**To can String Beans**

**To can BEETS**

**How to can tomatoes so they'll stay firm and solid**

**LORAIN - OVEN HEAT REGULATOR**

**SHARP JEWEL GAS RANGES**

**Dealer's Name and Address**

**SHARP JEWEL GAS RANGES**

**Dealer's Name and Address**

type and quality of appliances used and felt that only by controlling sales could they eliminate the danger of customers buying inferior or dangerous appliances for which in the end the gas company might be blamed.

But the gas company was essentially an engineering corporation. In the distribution of gas it had a monopoly. It was natural in the sale of appliances, that the gas company should endeavor to hold an exclusively controlled market. Exclusive control, however, frequently led to passive carrying of stocks rather than to aggressive selling.

We believe that the manufacturer who sells articles which fall into the convenience class does well to obtain the widest possible distribution of his product and the wider distribution the larger the business he is likely to do. In the second place, we believe that in a line like stoves, which is a shopping line, the business can best be developed for the industry by having more than one stock available in a community.

In how many cities in the United States today are gas appliances attractively displayed? Not many. Let us not, however, put all the blame on the dealer. What has the

and it should deal fairly with the manufacturer who cares to develop better consumer attitude toward his product. Unless the situation can be changed with reference to the company's attitude it probably would not be worth while, but granting a change, the manufacturer then needs to do something besides advertising. He needs to merchandise his advertising.

The day of easy selling is past. The special requirement of the manufacturer is intensive selling. In the last analysis the essential problems of the gas industry seem to be the same as those of other industries:

First—Quality.

Second—Advertising.

Third—Aggressive selling.

Advertising is a process of education. The recognition of the merit of a product is the thing which can be gained by advertising. Advertising creates a great opportunity to put zest into the efforts of men who are intelligent, to go out and work. Furthermore, it creates a market. When your salesman goes to the door, 60 per cent of all the sales are apt to be made the first time he calls on a customer, and 30 per cent of all his sales may be on the second time, and not more than 10 per cent after the second time.

In the second place, advertising comes again and again to the person who has bought. It can not be estimated how many women who turn the pages of magazines will stop to read your advertisement before they buy. *With the woman who has bought your product, her recommendation may make or mar your market in that community.*

There is an opportunity in the gas industry, and also in the appliance industry, to take the public into your confidence to tell your story, to get your employes and your dealers behind you in your efforts in order that all of you working together may go out to that ultimate consumer. In the last analysis the whim of the consumer makes or unmakes manufacturers, jobbers and retailers.

**RELIABLE**  
**ANGLIRON**  
GAS RANGE  
with LORAIN Oven Heat Regulator  
Will roast, bake, broil or stew unattended. Simply set heat regulator wheel and cook automatically  
See demonstration at  
**EDWARD GREENSTONE FURNITURE CO.**  
N. E. Cor. Milwaukee Ave. & Paulina St.  
The "Square Deal" Furniture Store  
Open Thursday and Saturday Evenings

Street Car Advertisement Used by Edward Greenstone Furniture Company, Milwaukee Avenue and Paulina Street, Chicago. Printed in Red and Black on Green Background.

This does not necessarily mean that the gas company should not sell gas appliances. There is no logical or practical reason why gas company ownership should not extend to a sales agency for appliances.

The purchasers of gas appliances require four things, namely, (1) availability of article desired; (2) sufficient assortment of styles; (3) intelligent and helpful sales attention; (4) service—the opportunity to get promptly needful repairs of adjustments of this apparatus. There should be service available—prompt, efficient and at a reasonable charge.

*It at least seems clear that where independent agencies are selling good appliances, thereby helping develop consumption of gas, they are entitled to fair competition from the gas company.*

manufacturer done to help the dealer to trim his window and make his store attractive? Have they offered prizes, aroused friendly competition and portrayed nationally the winning displays?

The manufacturer, in turn, says that it is impractical for him to develop markets so long as he has the opposition of gas companies. Improvement in the sale of gas appliances seems to begin with the reformation of the gas company's attitude.

If the individual gas company runs a sales organization it would seem better to conduct it as a separate department, one designed to make money on the sale of appliances; it should deal fairly with every person who is trying to operate on a sound basis in the sale of appliances in that community,

## G. E. Waters Thinks Nothing of Selling Four Kitchen Ranges in One Family.

*Every Employee in His Store Knows How to Tell What Their Ranges Will Do and Tell it Well.*

JUNCTION CITY, Kansas, is a real Western business place of approximately 7,000 inhabitants, located about 140 miles due West of Kansas City, on the Union Pacific Railway.

In that thriving city there is a re-

tail enterprise operated under the name of the C. E. Waters Hardware Company, and it is interesting to know that although 1921 was generally considered a poor year for business this progressive company sold 25 Copper Clad kitchen

ranges, as against 28 during its best year.

The only explanation for this exceptionally good showing can be found in the fact Mr. Waters was on the job and saw to it that whenever a prospective purchaser of a kitchen range was located, that prospect was kept informed at regular intervals that Waters' was a good place to buy the range, and that the Copper-Clad was the range she ought to buy, as Mr. Waters very aptly puts it.

It is also worthy of note that only one kind of high class ranges are carried in stock. Lower priced cook stoves are on hand if the customer is unwilling or unable to buy a Copper-Clad, but the heavy sales effort is put on that line.

"We started selling Copper-Clad in 1914 and by keeping at it," says Mr. Waters, "we have succeeded in building up a good business on them. So well have they become established that it is not a rare case to have old Copper-Clad customers bring in prospects to us.

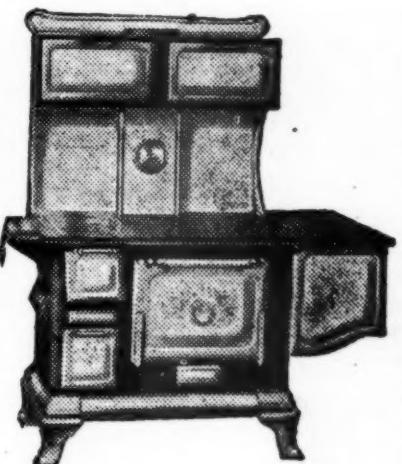
"In fact, we have a number of families where as high as four Copper-Clads are used. When the daughter of one of our customers is getting ready to go to housekeeping, it is a matter of course for her to come to us for her range, and it must be a Copper-Clad, or she will not be satisfied.

"We have 'Demonstration Sales' twice a year, and while of course we sell several on these occasions, we find that these demonstrations develop a number of very good prospects, and these we follow up, both from the store and by means of the sales' service of the Copper-Clad Malleable Range Company in St. Louis.

"We have also found that local newspaper advertising is helpful.

"But the main point is that all of our salesmen are thoroughly sold on this line. Each one of them knows every special feature and knows how to point it out to the customer in such a manner as to make her see the significance of the

**-like going  
upon the roof  
to get out of  
the rain**



The Copper-Clad is lined with pure sheet copper, placed between the sweaty asbestos and the outer range wall. This prevents rusting.

Because of Copper-Clad patents no other range can put any kind of rust-proof material between the range body.

And to put it anywhere else is like climbing up on the roof to get out of the rain. Come in and let us show you how the asbestos works.

**WM. H. PARSONS**

**Hardware and Harness**

**SOUTH**

**SIDE**

**SQUARE**

**When you buy your range—Buy a Copper-Clad**

particular feature with reference to the lasting qualities as well as the service rendering of the range.

"Ordinarily we sell on a straight cash or credit basis, but occasionally we do sell on easy payments, always having a distinct understanding as to the time of settlement and the size of each payment.

"No customer ever makes a complaint that is not taken care of to her complete satisfaction, so that every user of a Copper-Clad is a real booster, and that is what counts in the long run.

"To make a long story short:

1. Pick out a range that you know you can afford to recommend.

2. Stand back of it in every respect and keep your customer satisfied.

3. See that your sales people are sold on your range as well as you are. Then they will sell them in sufficiently large numbers to make your stove department a really profitable part of your store.

4. Be on the job and find out where there is a prospect for a sale, and keep after that prospect until either you or 'the other fellow' has made the sale."

### *Unique Arrangement of Stove Top Makes Quick Change Possible.*

The user of a six hole combination gas and coal range frequently requires three openings for gas, while at other times it may be desirable to have four holes for cooking with coal.

In most of the combination

ranges this is not possible, but the Independent Stove Company, Owosso, Michigan, makers of "Renown" stoves, ranges and furnaces, have recently placed on the market a six hole combination coal and gas range under the name of Loyal Renown, which is so constructed that in less than a minute's time it can be changed from a three-hole-coal or wood and three-burner-gas range to one with four holes for coal or wood and two gas burners.

All the necessary extra parts are furnished with each range.

The same company also makes a four-hole and four burner gas combination known as their Radiant Renown.

Both lines are equipped with the usual coal or wood baking oven and with a gas oven and a gas broiler above the splash and have automatic push button lighter, the latter being furnished at a small additional price for the six-hole range.

All Renown combination ranges come in nickel finish or enameled in white, blue or gray.

Very attractive booklets and other selling helps, printed in colors, showing the various finishes of their ranges are furnished by the company. Sample pages of one of these booklets are shown herewith.

### *Advise Against Cutting Price on Stoves.*

"There is one piece of advice that I would like to impress on the retailers this fall," said a stove manufacturer. "And that is: Don't shade

your prices in stoves. Have one price and stick to it. This is the best policy, I believe, at all times, but it applies particularly at the present time."

"The stove trade this fall," he continued, "promises to be exceptionally brisk. With so many new homes which have gone up during the year to be equipped and new families flocking in, the live and aggressive dealer has a large field to work on. He should be able to make sales without resorting to the foolish expedient of price cutting.

"Cutting price not only reduces the profit of the dealer, but it provides trouble for the future. With such good prospects for trade ahead dealers would do well stoutly to adhere to the one-price principle."

This point can not be urged too strongly. The profit on a stove sale is certainly not too large when everything is considered. A reasonable profit only is allowed.

If the price is cut it simply means that the dealer does not secure on the sale the profit that he should get.

Instances are fairly common where cuts are made of such size that the dealer actually lost money on the transaction.

Conditions everywhere are improving. People have money to spend and are reasonably inclined to spend it.

There should be no difficulty in securing the regular price for stoves this fall; in fact, there will not be in a majority of cases. To sell a stove for \$5 less than it would ultimately bring is the extreme of folly.

As a matter of general principle, it is inadvisable to cut a price. Consider it this way. Jones, the hardware dealer, sells a range to Smith for \$57. Brown comes along some time after and looks at the same kind of range. He likes it but haggles over the price.

Jones is anxious to close the sale and finally brings his price down to \$52, at which Brown closes. Smith afterward finds out from Brown the price he paid. Any wonder that Smith is "sore" and transfers his



Sample Pages from Booklet Describing Loyal and Renown Combination Ranges. Published by Independent Stove Company, Owosso, Michigan.

business to the opposition hardware store?

That's the way it works out every time. It is better to lose a sale or two than to involve oneself in the difficulties which price cutting invariably brings.

It is not often that a sale is lost through refusal to cut.

The average buyer haggles over price on general principles. He may mentally decide to take that stove but he does not let the salesman see it until he has found out what he can do with him in the matter of price.

It is probably good business on

the buyer's part. If he can beat the salesman down it is just like so much cash in his pocket.

If the salesman gives in the customer is very likely to try the same tactics whenever he comes back for other goods.

If the salesman holds out, the customer buys anyway. This does not apply to all cases, of course, but to the majority.

If a customer likes a stove but makes it quite clear that the price is too high, it is better policy to show a slightly cheaper grade of stove than to cut the price on the first one.

## *Service and Making His Customers Feel Satisfied Is Main Point, Says Morgan.*

*LaSalle, Illinois, Merchant Puts Special Emphasis on Service and Price.*

NINETY-FIVE stoves and ranges is quite a bunch to sell in a city of less than 15,000 people by one retail merchant, but that is the record of W. F. Morgan, a progressive stove merchant of La Salle, Illinois.

When it is considered that a large portion of the local population is foreign born, it will readily be recognized that extraordinary means must be employed as the La Salle newspapers are not read by these people, and Mr. Morgan makes use of his old customers to produce new prospects for him.

"The main point of our success in the stove and range business is that we make absolutely sure that when a woman buys a range she knows everything she should know about it to make the range function properly.

"We see to it that it is set up just right, and if it should happen to work unsatisfactorily we send a man out right away to see what is wrong and he remedies the trouble before he quits that particular job.

"That shows the customer that we are not simply anxious to get her money and to get rid of a range, but that we are just as anxious to render her a real service by selling

her a range with which she can do her cooking, baking and roasting in a way that is pleasing to her.

"We have sold Hoosier stoves and ranges since 1909 and I am free to say that in my opinion they represent about the best value for the price we pay, also that we can afford to sell them at very attractive figures and still make a fine profit.

Last year was not a good year for stoves and ranges, as we all know, and our sales fell off about one-third, but still we disposed of ninety-five, so possibly we have no reason to kick.

"This year we expect to increase our business very materially, and we are going after it earlier than usual. I believe that it is a good idea to start pushing stoves and ranges before the period when the average dealer begins. There is no reason why a housewife should not buy the range that she knows she will need this Fall in August rather than in October, and the early bird catches the worm, as the old saying goes."

With the possible exception of vanity, a woman may outlive all her faults.

## *Pennsylvania Stove Salesmen Will Celebrate Silver Anniversary.*

In December it will be twenty-five years since the Stove Salesmen's Association of Pennsylvania was organized, and a committee is now preparing a history of the Association.

Any member or former member is invited to forward such data as he may have, photographs of gatherings, etc., bearing on the activities of the organization, to Secretary James McGaw, 2223 East Cumberland Street, Philadelphia.

The Stove Salesmen's Association of Pennsylvania, with its sister organization in New York, has done a great deal to improve the store business in these two states, and AMERICAN ARTISAN AND HARDWARE RECORD congratulates the officers and members upon the completion of these twenty-five years of constructive work for the interest of the store business.

## *Puts Display of Stoves Near Entrance.*

A considerable increase in the volume of sales rewarded a hardware dealer who arranged a display of stoves near the entrance of his store.

Many customers coming into his store have no thought of buying a new stove when they enter.

With their attention attracted by the handsome line just as they enter, they are compelled to think about stoves and the result is that many sales are made which might otherwise go to competitors.

This dealer also mounts each stove on display on a roller base so it can be easily moved around when making a sale to a customer.

It is often times inconvenient for the women, especially when examining a stove, to wedge past another stove to examine the construction of the stove she is interested in.

By having each stove on a roller base, it can be very easily moved and the customer can then conveniently examine it.

## C. T. Schaffner Talks Range Construction and What It Means in Cooking and Lasting.

*Illinois Hardware Merchant Makes Quality His Chief Selling Argument in Making Range Sales.*

**H**ERRIN, Illinois, has had some undesirable publicity during the past couple of months, but they do something besides fighting in Williamson County.

At any rate, C. T. Schaffner, Secretary of the Herrin Supply Company, maintains that the people of that locality know something of values in kitchen ranges, for last year, he says, the Company sold forty Quick Meals, and that is going some in a year when almost everybody claimed that people had no money to spend for such things.

Mr. Schaffner is one of the class of hardware merchants who believe that it is possible to sell high class merchandise and to get a price that is high enough for it to yield a good profit on the sale.

He also recognizes the fact that unless you "know your line" you cannot tell about it in a truly effective manner, so he makes it a point to give his sales people careful and thorough instruction on all the various features of Quick Meal kitchen range construction.

"We talk 'construction,'" said Mr. Schaffner, "and by that I mean that we emphasize in an easily understood manner such features as the asbestos lining, the porcelain enameled and ventilated back linings and other points which are almost exclusive with the Quick Meal ranges.

"It makes little difference, therefore, whether the prospective customer is taken in hand by me or one of the sales people; she gets exactly the same technical talk, and we all bring out the fact that because of these special features the Quick Meal will bake fine bread and cakes, will roast meats just right and will do all this with an economical expenditure of fuel, and finally that it will last a long time.

"The fact that the Quick Meal Stove Company has been in exist-

ence with its predecessors for a long time and that it has always been known for making good ranges also is brought out to good effect.

"We started selling this make in 1910, and many of our sales during the recent years were made on the strength of the recommendation of customers from these early days. It

always pays to sell good merchandise, because then you will not have to be afraid of referring to Mrs. Will Jones or Mrs. James Smith who live next door. They will tell your prospective buyer that the Quick Meal is a fine range."

Herrin is a town of about seven thousand inhabitants most of whom are engaged in coal mining. Many of them are of foreign birth, and unless the mines are operating money is not very plentiful, so the record of the Herrin Supply Company in selling forty Quick Meal



WE  
WOULDN'T  
HANDLE  
POOR  
OIL STOVES  
IT WOULD  
NOT PAY US  
NOR PLEASE  
YOU



YOU CAN COOK  
BETTER WITH  
BETTER THINGS  
THAT'S WHY WE SUGGEST  
QUICK MEAL OIL STOVES.

THEY ARE ECONOMICAL, RELIABLE, FAST-COOKING, and  
PERFECT BAKING

—A Summer Comfort and Necessity—



**BUSCH'S**  
Hardware Store  
UNION, MO.



Newspaper Advertisement Published by Busch's Hardware Store, Union, Missouri, in which Quick Meal Oil Stoves Are Featured.

kitchen ranges in 1921 may well be considered a good one.

One of the means used by Mr. Schaffner is advertising in the local

newspapers, which brings in good leads in the way of prospects, who are followed up at regular intervals by mail or personal call.

## *Kunzelmann Specializes on One Make of Reservoir Ranges.*

*Milwaukee Stove Merchant Tells How He Has Built Up Trade on Coal Range with Rural Customers.*

**M**ITCHELL Street and Second Street is in the down-town section of Milwaukee, Wisconsin, and, naturally, the bulk of business in such a locality is done principally with city people, but in spite of this fact, Kunzelmann-Esser Company, a large housefurnishings concern at that point, has built up a considerable trade with farmers and other rural folk, and Mr. Albert P. Kunzelmann, President of the Company, tells in the following what he is doing in the Jungers hidden reservoir range—the range which is known as the "round corner range."

To AMERICAN ARTISAN:

We have handled the Jungers Stove for approximately 5 or 6 years and have had excellent success with them, figuring that we carry but one pattern on the floor. This one particular stove is with a reservoir. We do not have a great deal of the rural business and whatever we do get, it seems, we encounter no difficulty in selling this particular stove.

It is so beautiful that it certainly appeals to the average buyer. Occasionally we find a customer that thinks the stove is a little too high in price and wants something a little more moderate, but after seeing what is in the market with a reservoir, they usually come back and buy this particular make.

It is one of the most beautiful designed stoves, I believe, in the American market today. Everything works like a snap, the nickel is A-1, their steel has never got a bulge or dent in it and their high closet is well proportioned and is in keeping with the base. We have had to re-

place one of their fire pots as long as we are selling them.

I wish to say that we sell approximately 20 to 25 of these stoves a year. We never handle anything else with a reservoir but this particular stove, as we do not have enough business for this particular class of a stove. We do not advertise same as we do not go into the country and, in fact, only have our city papers that we advertise our stove department in. No doubt, if we made a special effort through the rural community we could increase our sales on this particular stove.

### *Friendliness Is the Best Aid to Good Salesmanship.*

If a man thinks everyone is against him, he will soon begin to treat them so they will be.

If he thinks everyone is his friend, he will treat them right, unconsciously, and they soon will be his friends.

The man who lives his daily life according to this formula has in his make-up a spark of sound and true philosophy that will make his life brighter.

If we put into all the relations with our fellows a full measure of friendliness and good will, we are pretty sure to get it back, full and overflowing.

On the other hand, if a man is suspicious of everybody, everyone will be suspicious of him.

The world needs friendliness, and kindness, and good will—not Sundays only, but every day of the week, and every hour of the day.

Think friendly thoughts.

If you've got a soul don't be ashamed of it.

Bring it into the office with you.

For the soul is the source and fountain-head of every good and worthy impulse.

Put your faith in men.

Believe they are your friends, and they will be.

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### *Show the Injustice of Price Cutting.*

From the point of view of profit as well as of ethics, it is well to read carefully the following extracts from an analysis of price cutting by Congressman M. Clyde Kelly in a pamphlet issued by the American Fair Trade League, New York City:

The Profiteering Price Cutter who takes a standard, identified, widely wanted article and reduces the standard price in order to deceive the unwary customer, is a trade pirate.

He is a spider luring the puzzled customer into his web.

He is not a public benefactor, he is a public malefactor.

His predatory plan is to fool the purchaser by giving him a few cents on one transaction so that he may rob him of dollars on others.

He is a price cutter in order to be a profiteer. He gives 25 buyers a bargain on known goods so that he may overcharge 500 customers on unknown goods.

He piles up profits for his department store or mail order house by the tactics of the green goods man and advertising faker and the deceived public foots the bill.

His success, built on unfair methods, means higher price and lower quality on all goods.

In the beginning he robs the consumer by fraud and in the end devours him by extortion.

The Profiteering Price Cutter ruins the reputation of high grade goods and destroys the good will of the makers, thus stealing both purse and good name in one operation.

He advertises standard goods at a loss and then seeks to persuade

the public to accept substitutes on which he makes money.

He demoralizes the price and the product.

He forces other dealers to follow his lead or refuse to handle the article.

He restricts sales and lessens distribution.

His unfair practices leave the manufacturer helpless to protect his business, into which he has put his name, his labor and his money.

The Profiteering Price Cutter drives the small distributor to the wall by the worst form of illegitimate competition.

He destroys competition by the very practices the Anti-Trust laws were intended to prevent.

He is the cut-throat competitor who is everywhere and always the forerunner of monopoly.

He is a restrainer of trade and a lessener of competition.

He robs the neighborhoods of their corner stores, which can give best services under fair competition.

He shouts for a free market where, in a jungle war, his unscrupulous tactics may give him a stranglehold on business.

The Profiteering Price Cutter helps to weaken the honesty and morality of American business.

He seizes any straw, however flimsy, to free himself from moral and legal obligations to fulfill contracts and obligations.

He breaks down the one-price-to-all system, which is an inseparable companion of business honesty.

He is the author of many degrading tendencies in business.

His spirit of disregard of fair play is encouragement to every cheat in business.

He helps rot the fabric of American Commerce.

He breeds the tax dodger and the canceller of honest contracts and the men who cheat but keep within the law.

He encourages "gentlemen's agreements."

He is an enemy of the public good and he must go.

Give the independent manufacturer of identified, guaranteed goods the right to maintain a one-price-to-all policy and protect his reputation and good will, which depends upon public approval of the price and quality of his product.

That will assure a square deal for business and the public.

## *Put Money in Your Till by Helping Your Customers Get Fruits and Vegetables at Small Expense Next Winter.*

*Study the Advertisement of the Brown Hardware Company on Next Page and You Will Learn a Good Way to Sell Canning Supplies.*

YOU can get a profitable share of the sales of canning supplies this season if you will follow the example of the Brown Hardware Company, Brazil, Indiana.

The Brown Hardware Company uses space in local newspapers to let the women of Brazil, Indiana, know the extent, variety, and trustworthiness of its stock of canning supplies.

This in itself is an effective means for bringing customers to the store.

But it is not effective in reaching people who are not in the habit of putting up fruits and vegetables for winter use.

Therefore, the Brown Hardware Company does something more than merely telling the women about this efficiency of its stock of canning supplies.

In the advertisement reproduced herewith, the Brown Hardware Company makes an appeal to the saving instinct of the housewife.

In simple sentences, the advertisement tells her that there is a bountiful crop of fruits and vegetables this year which will enable her to supply her table with choice fruits and vegetables at small expense.

Furthermore, she is informed that fruits and vegetables will be cheaper than for many years.

This information is made personal to the individual women of the home by the statement that "the wise housewife will take advantage of this by putting up her own berries, peaches, and other fruits, and canning her own tomatoes, corn, etc."

The body of the text of this advertisement is devoted entirely to the idea of the economy of home canning and the advantage of having a supply of choice canned fruits and vegetables at small expense.

The effect of this kind of reasoning is that many women who during the period of high prices were

discouraged from putting up preserves, jellies and other canned goods for the winter, have their interest in this phase of household economics revived.

The Brown Hardware Company gives a sufficient suggestion of the reasonableness of the prices of the canning supplies offered in the advertisement by mentioning at the end of the copy an aluminum canning outfit for \$1.98.

Not only is the advertisement artistically designed as regards type faces and arrangement, but it is attractively illustrated in such fashion as to give an adequate idea of the variety of the canning supplies offered to prospective customers.

This is the sort of printed salesmanship which possesses not only the power of logical reasoning, but the physical influence of suggestiveness through artistic appearance and illustration.

Hardware dealers who do not

succeed in getting a profitable volume of sales during the canning season would do well to compare the wording, makeup, and illustration of their advertisements with the advertisement of the Brown Hardware Company.

If you have been running advertisements in plain heavy type and merely giving a list of things that you are selling for the canning sea-

rive an advantage from goods described in the advertisement.

It is not enough, therefore, merely to give a list of the commodities and their prices.

The advertisement must be so constructed as to produce the impression of advantage to the purchaser.

In addition to the production of this impression, there must be the

In the setting forth thereof, the imagination of the reader is stirred by the thought of choice canned fruits and vegetables.

Thus, desire is stimulated.

The human instinct for saving is favorably affected by the statements in the advertisement that fruits and vegetables will be cheaper than for many years and that the benefit of their cheapness can be made available for winter time when fruits and vegetables are dear and scarce.

By taking the trouble to construct your advertisements with these influences and impressions in mind, you will succeed in enlarging the volume of sales of canning supplies.

You will bring more women into your store and, as a consequence, add new customers to your list of patrons.

#### *American Hardware Manufacturers Will Meet October 18 to 20.*

The annual convention of the American Hardware Manufacturers' Association will be held October 18, 19 and 20 in Atlantic City, New Jersey, with headquarters at the Marlborough-Blenheim Hotel.

Secretary-Treasurer Fred D. Mitchell recommends that hotel reservations be made at once, as the attendance will be unusually large this year.

#### *National Hardware Association Will Convene October 17 to 20.*

In conjunction with the meeting of the American Hardware Manufacturers' Association, the National Hardware Association, which is composed of wholesalers, will hold its annual convention October 17, 18 and 19, at Atlantic City, New Jersey. Headquarters will, as usual, be at the Marlborough-Blenheim.

It is suggested in the announcement that members and visitors make hotel reservations at once, to insure desired accommodation.

People would meet with fewer disappointments if they don't expect more than they deserve.

The advertisement features a central circular illustration of a woman canning. Below this, a vertical column of various canning equipment is shown, including jars, lids, a pressure cooker, and a scale. The main headline reads "Are You Prepared For Canning?" followed by a descriptive paragraph about the benefits of canning. Below this, a list of products is provided, along with a price for aluminum canning outfits. The company name "Brown Hardware Co." is at the bottom.

**Are You Prepared For Canning?**

Are you equipped to take advantage of the bountiful crop of fruit and vegetables this year which will enable you to supply your table with choice canned fruit and vegetables at small expense. Fruit and vegetable will be cheaper than for many years, and the wise housewife will take advantage of this by putting up her own berries, peaches and other fruits, and canning her own tomatoes, corn, etc.

If you are not equipped to put up fruit and vegetables by the successful cold pack process, let us supply you.

**Canning Racks  
Fruit Jar Rubbers  
Fruit Jars  
Bottle Cappers**

**Get one of our Aluminum Canning outfits \$1.98**

**Brown Hardware Co.**

Advertisement of Canning Supplies, Published in Local Newspaper by Brown Hardware Company, Brazil, Indiana.

son, you will be agreeably surprised by the increase of sales resulting from a better grade of advertising with reference to such commodities.

Salesmanship, whether printed or oral, must arouse desire through appeal to reason and emotion.

There must be in the gainful advertisement an influence which carries to the prospective customer the impression that he or she can de-

suggestion which arouses desire and translates it into action.

You will note in the advertisement of the Brown Hardware Company that all these qualities are brought into play.

The advantages to the housewife of a bountiful crop enabling her to supply her table with choice canned fruits and vegetables at small expense are clearly set forth.

# Suggestions and Plans for Window Displays.

**Instructive Examples from Exhibits in AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition.**

## KITCHEN RANGE WINDOW DRAWS TRADE.

Occasionally we find stove dealers who say that it is too much work to arrange a window display of their stoves and ranges, and that the results would not justify the effort.

But such dealers are few, comparatively speaking, and this is as it should be.

ware merchant in Rock Valley, Iowa, and was submitted by him for the recent Window Display Competition which is an annual feature of the cooperative service rendered by AMERICAN ARTISAN AND HARDWARE RECORD to its subscribers.

Mr. Schemmer states as follows:

"We had no stationary background, so we made one of heavy

we pasted other narrow streamers and cut-out banners showing the head of the 'Copper-Clad Crank.'

"Six good sized circular signs were pasted to the window on a level with the face of the average onlooker, calling attention to the asbestos sweat demonstration and to the free aluminum ware.

"Four narrow streamers were suspended from the top border,



Window Display of Copper-Clad Malleable Ranges Installed by A. F. Schemmer, Hardware Merchant in Rockwell, Iowa. Submitted for American Artisan and Hardware Record Window Display Competition.

But, few as there are, there are just that number too many, for window displays, properly planned and well executed, always bring business in volume large enough to pay for the time and labor expended in arranging them.

In the accompanying illustration we show a reproduction of a very attractive window display of Copper-Clad malleable ranges.

It was arranged by Mr. A. F. Schemmer, a progressive hard-

wrapping paper, from ceiling to floor, on which were attached large posters and banners furnished by the Copper-Clad Malleable Range Company.

"A beautifully polished range was placed in the center, toward the rear, and in front of same was displayed the set of aluminum ware which we gave away with each Copper-Clad sold during the demonstration week.

"Across the top of the window

emphasizing that Copper-Clads cook best, look best and clean like a dish.

"Two one hundred and fifty watt electric globes gave the only light used and the effect was fine.

"In taking the photograph we chose a dark night and gave the display a twenty-minute exposure.

"We received many favorable comments and were well pleased with the results."

Window advertising brings results.

### *Strengthens the Friendship of Old Customers.*

A western hardware dealer has discovered a clever method of capitalizing his old customers, both as a means of holding their trade and attracting new customers.

Each year, the dealer conducts an "Old Customers' Week."

During a certain period in the year, invitations are sent out to the old customers and their friends.

During a recent celebration of this kind, the store paper contained pictures and testimonials of old patrons. The announcement of the event was as follows:

"Neither words nor deeds can ever repay the debt of gratitude we owe you—our old customers—nor can dedicating "Old Customers' Week" to you fully express the deep seated regard we feel.

"However, we have set apart this week for you, trusting that it may in some small measure thank you for your long years of friendly patronage of this store.

"During this week we hope to meet everyone of you face to face, to grasp your hand in friendly greeting and tell you how grateful we are for the splendid success you have made possible.

"We want to visit with you as you lounge comfortably in easy chairs upon the balcony or in the rest room—and to hear of the days of long ago when the wonderful conveniences of today were entirely unknown.

"Come visit us in this cheerful store—Your Store—dedicated to serve you, your children and your children's children in such an efficient, friendly manner that you will always be glad to trade at "The Store That Friendship Built."

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### *Majority of Colleges Favor the Metric System.*

In view of the fact that the hardware trade of this country has practically approved the use of the decimal system of pricing, farther extension of the plan to include general use of the metric system is

likely to come up for discussion in conventions.

It is, therefore, of interest to note the results of a canvass among American universities on the question of adoption of the metric system as given by Eugene B. Bingham, chairman of the metric committee of the American Chemical Society in the *Journal of Industrial and Engineering Chemistry*.

"Out of 195 universities heard from to date, 194 were ready to change current practice in order to gain the advantages of metric standard packages," says Mr. Bingham.

"This was so nearly a 'quantitative yield' that it was feared that those opposing the movement were refraining from expression; so a letter was sent out asking all to reply even if opposed to the society's proposal.

"As a result, over a hundred additional colleges have been heard from, without a single dissenting voice. The colleges remaining to be heard from certainly constitute a minority of the American colleges and it is not probable that they are all opposed to our proposal.

"The committee had been warned that those favoring the metric system were 'crank professors' and that 'practical men' were thoroughly opposed to it.

"Feeling that this opposition was greatly overestimated the committee has begun a canvass of certain firms who are supposed to be purchasers of pure chemicals.

"The replies are still coming in, but of the 300 received to date, 6 are frankly opposed, 16 are not interested, having gone out of business, or being non-purchasers of pure chemicals, etc.

"This leaves 268 who are heartily in favor of our proposal so that they are willing to change their method of buying pure chemicals and apparatus so far as may be necessary to meet our suggestion.

"With this start it seems probable that the great majority of the business firms of the country buy-

ing pure chemicals will line up with us.

"Some of the firms opposing our proposal are very bitter, stating that the adoption of the metric system will cost amounts running into hundreds of thousands of dollars for each firm.

"Theodore H. Miller, of the De Laval Separator Co., states that his plant is now completely on a metric basis. The cost of the change does not even appear in the finished product. It did not cost as many hundreds of dollars as the hundreds of thousands prophesied.

"We believe that these people have been deliberately misinformed by those who say that with the adoption of the metric system even the plumbing in our houses will have to be changed.

"The gage of our railways, and even the couplings between the cars will, according to these misinformers, have to be altered.

"Because 16½ inches do not come out an even number of centimeters, they would doubtless maintain that a man who wears a 16½ collar would have to change his neck with the adoption of the metric system, quite oblivious of the fact that nature does not provide mankind with necks having dimensions in even half inches to suit a divinely instituted English system.

"The opposing letters do not give any argument against the metric system except professing to be appalled at the cost. They forget the cost of not adopting it.

"Dr. Wolf states that it costs us unnecessarily a million years in a generation to educate our children in the English system. It costs us much in foreign trade and in inconvenience.

"One prominent engineer reports a cost to him personally of \$10 a week by not having the metric system, because we specify particular gage numbers for different materials instead of specifying in millimeters."

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Nothing seems to please a loafer so much as an opportunity to bother a man who is busy.

### *Install Correct Lighting for Your Window Displays.*

A considerable number of retailers have not yet learned the part which correct lighting plays in rendering window displays effective.

The story is told of a Chicago store which discovered that one of its display windows failed to attract attention.

A steady procession of footsteps passed, but this window could not arrest them, or even slacken their speed.

One week the millinery department displayed in this space some attractive price reductions; women shoppers glanced vaguely at the window, and rushed right on. "Why?"

The head decorator had this question put to him none too gently.

Two of his assistants drifted back and forth across the store front, listened to the comments, watched the eyes of the crowd and discovered the answer.

When the decorators had installed invisible lighting systems they had neglected to change the lights in this particular window, and large, brilliant droplights still illuminated it.

They attracted attention—too much attention. You can not help being attracted by bright lights; and like a moth, you can not ignore the attraction.

Right here was the secret of the trouble with the window—the pedestrians could not look at hats and backgrounds and lights all at once.

The crowd's attention was caught momentarily by the most insistent stimulus.

All saw the lights; few saw the hats. When invisible lights were installed the trouble vanished.

Successful show window lighting depends greatly upon the conditions existing in the windows, such as backgrounds, ceiling, floor and the proper placing of the light sources, as well as the proper type of reflector and lamp.

Years ago it was found that the ordinary method of show window

lighting was not efficient and that each individual type of show window required special treatment.

In the past ten years there have been designed a number of special reflectors for use in show window lighting.

These reflectors have been made for use with various types and sizes of lamps and for the lighting of windows of different dimensions.

No attempt is made to light high, shallow windows with the same type of reflector which is used for low, deep windows, but average windows of the various types have been taken and special reflectors designed which would project the light rays in such a manner or at the proper angle so as to cover the background and floor of the window with a perfect and even distribution of light.

The size and shape of the window determines the type of reflector which is used. The number of reflectors used depends on the intensity of the illumination desired.

This is the most difficult part in engineering the lighting of show windows. So many things have to be considered in determining the degree of illumination necessary to make the window lighting a success.

Street lighting, neighboring windows, goods to be displayed, location of the store as to whether same is on a main street or a side street and the conditions existing in the window itself must be considered.

We must take the background, ceiling, floor and the fixtures used for making displays into consideration.

Light treatment of background, ceiling and floor mean a great aid to the lighting of the show window.

### *Join Your Association.*

There is very little truth left in the old adage that "Competition is the life of trade."

Competition is an excellent thing, in its way.

But there is no reason why the hardware dealer should refuse to associate with his fellow dealers in the same line when in a great many ways they can be mutually helpful.

### **Coming Conventions**

National Hardware Association Marlborough-Blenheim Hotel, Atlantic City, New Jersey, October 17, 18, 19, and 20, 1922. T. James Fernley, secretary-treasurer, 505 Arch Street, Philadelphia, Pennsylvania.

American Hardware Manufacturers' Association, Marlborough-Blenheim Hotel, Atlantic City, New Jersey, October 18, 19 and 20, 1922. F. D. Mitchell, secretary-treasurer, 1819 Broadway, New York City.

Western Implement, Vehicle and Hardware Association, Kansas City, Missouri, January 16, 17, 18 and 19, 1923. H. J. Hodge, Secretary, Abilene, Kansas.

Texas Hardware and Implement Association, Dallas, Texas, January 23, 24 and 25, 1923. A. M. Cox, Secretary, 822 Dallas County Bank Building, Dallas, Texas.

West Virginia Hardware Association Convention and Exhibition, Huntington, West Virginia, January 30 and 31, and February 1, 1923. James B. Carson, Secretary, 1001 Schwind Building, Dayton, Ohio.

Indiana Retail Hardware Association Convention and Exhibition, Indianapolis, Indiana, January 30 and February 1 and 2, 1923. G. F. Sheely, Secretary, Argos, Indiana.

Michigan Retail Hardware Convention and Exhibition, Grand Rapids, February 6, 7, 8, 9, 1923. Karl S. Judson, Exhibit Manager, 248 Morris Avenue, Grand Rapids. A. J. Scott, Secretary, Marine City, Michigan.

Wisconsin Retail Hardware Association, Milwaukee Auditorium, Milwaukee, Wisconsin, February 7, 8 and 9, 1923. P. J. Jacobs, Secretary-Treasurer, Stevens Point, Wisconsin.

Pennsylvania and Atlantic Seaboard Hardware Association Convention and Exhibition, Philadelphia Commercial Museum, Philadelphia, Pennsylvania, February 12, 13, 14, 15 and 16, 1923. Sharon E. Jones, Secretary, 1314 Fulton Building, Pittsburgh, Pennsylvania.

Ohio Hardware Association Convention and Exhibition, Cleveland, Ohio, February 13, 14, 15 and 16, 1923. Exhibition in the new Municipal Hall. James B. Carson, Secretary, 1001 Schwind Building, Dayton, Ohio.

Illinois Retail Hardware Association Convention and Exhibition, Hotel Sherman, Chicago, Illinois, February 13, 14 and 15, 1923. L. D. Nish, Secretary-Treasurer, Elgin, Illinois.

Iowa Retail Hardware Association Convention and Exhibition, Des Moines, Iowa, February 18, 19, 20 and 21, 1923. A. R. Sale, Secretary, Mason City, Iowa.

New England Hardware Dealers' Association Convention and Exhibition, Mechanics' Building, Boston, Massachusetts, February 21, 22 and 23, 1923. George A. Fiel, Secretary, 10 High Street, Boston, Massachusetts.

New York State Retail Hardware Association Convention and Exposition, Rochester, New York, February 20, 21, 22 and 23, 1923. Headquarters, Powers Hotel. Sessions and Exposition at Exposition Park. John B. Foley, Secretary, City Bank Building, Syracuse, New York.

# Study and Interpretation of Advertisements.

## You Can Make Your Advertisements More Gainful by Avoiding the Faults and Profiting by the Good Qualities of Others.

There is a brotherhood of sportsmanship which requires no initiation or formalities other than a common liking for the great outdoors.



The spirit of it is well phrased in the advertisement of J. J. Stangel Hardware Company, reproduced herewith from the *Manitowoc Times*, Manitowoc, Wisconsin.

Its text gives the impression of genuineness.

No one can successfully feign the brotherly spirit which breathes through the wording of this advertisement.

The message of it is direct; and its brief sentences stir the imagination and set desire aflame for the things suggested in taut casting line, the home run with the bases full, and the round of golf in 35.

In the original this advertisement occupied a space of  $6\frac{1}{4} \times 8\frac{1}{4}$  inches, so that its illustration was clear enough to serve the purpose of drawing attention to the wording.

\* \* \*

Ninety-eight cents, when printed in figures, looks much smaller than one dollar.

This impression forms the basis of a great deal of department store advertising.

When you offer an article for

\$9.98, it looks much cheaper than when it is offered for \$10.00.

Hardly anyone thinks that there is only 2 cents' difference.

This is the psychology in the advertisement of the Frank E. Kirby Company, reproduced herewith from the *Ironton Register*, Ironton, Ohio.

It is good psychology.

In every case the articles offered by the Frank E. Kirby Company for its bargain day sale could have been quoted at 2 or 4 or 8 cents more and still remain bargains.

A ten quart aluminum preserving kettle, at 98 cents, for instance,

## The Frank E. Kirby Co.

### The Sensation of BARGAIN DAY

*Never was there such low prices made by us and we have given some rare bargains. We have bought liberal but advise early buying for these unusual bargains will not last thru the day.*

10 qt. Aluminum preserving kettles	4	98c
10 qt. Aluminum Water Pails	4	98c
10 qt. Aluminum Dish Pans	4	98c
4 qt. Aluminum Cooker	4	98c
8 qt. Aluminum Burlin Kettle	4	98c
2½ qt. Aluminum Boilers	4	98c
5 qt. Aluminum Tea Kettles	4	98c
Aluminum Roaster, round	4	98c
Aluminum Percolator	4	98c
14 qt. White Enamel Dish Pan	4	98c
12 qt. White Enamel Water Pail	4	98c
10% discount on all aluminum.		

*If you want any of those good jar rings you will have to hurry.*

would be uncommonly cheap at \$1.25.

By using the principle of association of ideas, a bargain day of this kind can be made the occasion of sales of many articles other than those listed in the advertisement.

People coming into a store for these bargains see other goods which they need and are, therefore, likely to make additional purchases.

But it is not advisable to have too many bargain announcements in the store's advertisements.

An occasional sale of this sort serves to arouse interest and to add new customers to the store's regular list of patrons.

In the original, this advertisement measured  $9\frac{1}{2}$  by  $4\frac{3}{4}$  inches.

It was, therefore, big enough to get the necessary prominence for reaching the attention of the readers of the paper in which it appeared.

\* \* \*

An excellent example of simplicity combined with strength and sincerity is furnished by the advertisement of Hinckley and Garrett, reproduced herewith from the *Dowagiac News*.



No higher in price than most you could buy, but it lasts three times as long.

5 Ply Hose	.....	15c foot
½ Molded Hose	.....	18c foot
¾ Molded Hose	.....	20c foot

**HINCKLEY & GARRETT**  
PLUMBING HARDWARE HEATING  
DOWAGIAC MICH.

*News*, Dowagiac, Michigan.

The illustration is clean-cut and helpful.

The prices quoted are very reasonable for guaranteed garden hose.

Their reasonableness is made more persuasive by the statement that the hose advertised lasts three times as long as the average garden hose.

The advertisement is neatly designed and attractively spaced.

# If You Tell People Even Half of What You Know About Warm Air Heaters, You Will Develop a Big Business.

*Selling Warm Air Heaters Is Mainly a Matter of Educating Prospective Customers as to the Superior Merits of the Warm Air Heating System.*

**Y**ARDS upon yards of words have been written about the technical side of the warm air heater dealer's business.

He has been taught the main facts of the science of heating.

Universities have established research laboratories for working out the problem connected with the construction and installation of warm air heaters.

Physicians and medical specialists have conducted long, patient, and delicate tests to determine the relation of moisture or humidity in the atmosphere to heating as bearing upon health.

And, although the warm air heating industry is still in its infancy with regard to scientific developments, an immense collection of usable facts have already been accumulated for the information of the dealer and installer as well as for the guidance of the householder.

These facts unmistakably prove that the **warm air heating** system properly installed and operated is superior to every other form of heating known to modern civilization.

A big percentage of the people, however, are not acquainted with the facts.

They do not know, for instance, that the warm air heating system produces a complete change of air in the home at least four times an hour.

With steam or hot water heating, it is practically the same air which is warmed over and over again until it is almost unfit for use.

In the steam or hot water heated home, the air produces a dead sensation which is so depressing.

You can notice it the moment you enter such a house.

Moreover, comparatively few people know that the excessively dry air of homes heated by steam

or hot water is the main cause of winter colds and catarrh.

The mucous lining of the nose and throat requires a plentiful supply of moisture to keep us in good health.

This moisture is dried out by steam or hot water heating, and a condition of irritation is set up which renders the inhabitants of such a house liable to a winter-long series of coughs, colds, catarrh, and bronchial troubles.

You as a warm air heater dealer and installer are pretty thoroughly acquainted with the facts.

Your knowing them, however, is not profitable to you unless you make use of them as a means for increasing the volume of your sales.

In other words, if you tell the people even half of what you know about warm air heaters you will develop a big business.

Of course, you have the unanswerable argument of economy in operation of the warm air heater.

But this is not your best selling argument, although it is helpful in building up the trade.

You should combine this argument of economy with the much more convincing and persuasive argument of comfort and health.

Instead, therefore, of printing advertisements telling about the solid construction of the warm air heater which you handle, its area of radiating surface, and other mechanical details, you should put the strongest emphasis upon the facts of health and comfort, combined with economy.

A warm air heater system provides ample moisture or humidity in the air of the home.

This is of supreme importance and you can not too strongly accentuate it in your advertisements.

Now it is not necessary for you

to labor far into the night in an effort to phrase all these facts in an effective advertisement.

In most cases, the manufacturers of warm air heaters have assembled them in attractive forms of advertising literature which they will gladly furnish for use of your customers and prospective buyers.

It remains for you to apply these manufacturers' helps to your business.

Keep in mind always that the majority of people in your territory do not know the central facts of health and comfort as they relate to the warm air heating system.

Therefore, carry on a steady campaign of education in the local newspapers and through your mailing list.

Get all the advertising helps you can from your jobber or manufacturer in the form of booklets and circulars.

Distribute these systematically and persistently throughout the territory in which you naturally expect to do business.

Bear in mind, also, that it is easier to forget than to remember.

Hence, the people to whom you sent advertising matter the past year are likely to have forgotten what they read.

Write to them again, enclose more circulars and add something of your own to what you send out.

When you call on a prospective customer, do not talk technicalities.

Place the heaviest stress upon the slogan of the industry, namely, "Fresh Air Heating Means Health."

This is the slogan adopted in the emblem of the National Warm Air Heating and Ventilating Association after a careful study of the best and most expressive summary of the advantages of warm air heating.

Selling warm air heaters is main-

ly a matter of educating the prospective customers as to the superior merits of the warm air heating system.

Examine the advertisements which you have been running and see to what extent they contain the argument of health and comfort combined with economy.

Sit down and review your selling talks.

Find out how much or how little of the facts of health and comfort enter into these talks.

Then revise your advertisements and selling talks accordingly.

Tell the people what you know about warm air heaters and you will get their orders.

#### *What Furnace Dealers Should Know About Germs.*

One of the big improvements in the use of the warm air heating system which will eventually gain general adoption is the addition of ozone to the air circulated by the warm air heater.

It is of interest, therefore, to the progressive warm air heater dealer and installer to know the main facts about ozone in its relation to health and its value in destroying germs.

Just what is meant by germs and bacteria is set forth in an article on "Ozone and Bacteria" by William J. Lohman, of the Ozone Air Purifier Company, written in collaboration with P. W. MacMillan.

"Far down in the scale of living things," he writes, "and, in fact, at the very bottom, so far as we know, there exists a vast aggregation of infinitely minute organisms which are variously called bacteria, microbes, germs, micro-organisms, etc. They assume many forms and their reactions and methods of reproduction vary greatly, but the study of their life histories constitutes the basis of the science of bacteriology."

"Bacteria are not animals, but plants, and consist of a single cell, being the simplest structure possible in any living thing. This cell is composed of a mass of albuminous matter called protoplasm, surround-

ed by a membranous sack of protein matter resembling cellulose or wood fiber.

"Although bacteria are plants, they are unable to produce their own food from inorganic matter after the fashion of those higher vegetables with which you are familiar. It is, therefore, necessary for them to obtain their nourishment from dead or living organic matter. In the first instance they are known as saprophytes, in the latter as parasites. Certain types of bacteria which are natural parasites may, through force of necessity, lead a saprophytic existence for a long time. In like manner certain species may become parasites.

"A very marked example of this characteristic to accommodate themselves to dead conditions is presented in the typhoid organism. By nature it is a parasite choosing as its habitation the intestinal tract of warm-blooded animals. Yet the typhoid bacillus may live many weeks frozen in solid ice and is frequently found in contaminated water, dust, milk, vegetables and in the ground that has been infected. Certain types of bacteria are parasitic to only one kind of animal as, for instance, the disease known as anthrax in sheep and glanders in the horse. These specific organisms may, with great difficulty, be transmitted to other animals, but their natural hosts are best suited for their development.

#### **Bacteria Not All Harmful.**

"Of course, not all bacteria are harmful. Were it not for certain species of bacteria all life of every kind would disappear from this planet. The continued existence of our food supply depends upon them. Nature demands that after death all things which have lived upon the earth's bounty shall give back to the earth that which they took from it during life. This law governs humanity just as inexorably as it does the blade of grass. The fallen leaves, trees and branches would soon choke our forests to death were they not attacked and destroyed by bacteria which cause them to decay and through this decay convert this waste matter into

food for the survivors. Imagine, if you can, the condition of this earth if all decay were to suddenly cease. Picture to your minds the awful condition of this earth one hundred years hence if all things that die were to undergo no physical change after death.

"Without bacterial action, we could not produce a loaf of bread or any other food requiring yeast, as yeast is a form of bacteria. Neither could we manufacture beer, wine, alcohol or vinegar, as these are all products of bacterial action. Let us now examine these bacteria closer and see how they live and reproduce themselves.

"As was said in the beginning, they consist of a simple cell. In size they are so small as to almost baffle description.

"A high-powered microscope using a  $1/25$  inch oil immersion lens gives a magnification of 22,000 diameters, and under this power, bacteria appear about the size of ordinary newspaper type. The average man viewed under similar magnification or higher than Mount Blanc.

"I might put it in still another way: If we accept the bacterium as the smallest of living things and a full grown elephant as the largest, the common house fly would be just midway in point of size. In other words, there is just as much room on a house fly for bacteria as there is on an elephant for the house fly. It would be well to remember this fact next time a fly takes a high dive into your cream pitcher.

#### **Reproduction of Bacteria.**

"The reproduction of bacteria takes place in two ways; by fission and spore formation. Fission is a process of transverse division whereby an organism divides into two parts each of which thereafter leads a separate and independent existence, and these in turn divide again into two, and so on. Spore formation is akin to the production and liberation of seeds in the more familiar plants, but, of course, takes place much more rapidly. The rapidity with which the bacteria develop and multiply varies with different species and is in all cases profoundly affected by the nature

of the medium in which they occur as well as by condition of temperature, moisture, light and air. Under ideal conditions fission or subdivision may take place every fifteen minutes. Under less favorable conditions it might require several hours.

"With reference to the incredible rapidity with which bacteria multiply under favorable conditions let us assume that an organism divides into eight in the third hour, and into two within an hour, then again and so on. The number of bacteria thus produced from a single individual in twenty hours would exceed 16,500,000. In two days they would increase to 47 trillions and in a week a number expressing them would be made up of fifty-one numerals, and can not be expressed mathematically.

"As to their volume at the end of twenty-four hours, the bacteria descended from a single individual would occupy  $\frac{1}{40}$  of a hollow cube whose size measures  $\frac{1}{25}$  inches. At the end of the second day, they would fill a space of 27 cubic inches, and in less than five days their volume would exceed that of the entire Atlantic Ocean. As to their weight, a single bacterium weighs about 672 quadrillionths of a grain. Forty thousand million would weigh one grain, and two hundred and eighty-nine billions would weigh a pound. After twenty-four hours, the descendants of a single bacterium would weigh  $\frac{1}{2,600}$  part of a grain. After two days, over a pound, and after three days, 7,366 tons. It is hardly necessary to state that these figures are purely theoretical and could be realized only if there were no impediment to such rapid increase. Fortunately, various checks such as lack of food and unfavorable physical surroundings prevent unmanageable growth.

Bacteria come under the head of organic matter and are composed of about 86 per cent water and 14 per cent solid matter, of which a little more than one-half is carbon. When a bacterium is exposed to ozone in a high concentration, the

carbon is instantly reduced to carbonic acid gas, and the organism is absolutely annihilated. Ozone in high concentration does not simply kill bacteria, it literally removes them. But in ventilation high concentration must not be used.

"Bacteria during their process of generation produce various poisonous compounds known as toxins. The bacteria themselves have no power to do any harm but the toxines produced by them are what cause all the trouble in an infectious disease."

#### *Proceedings of Warm Air Heating Meeting Are Published.*

The proceedings of the Ninth Annual Convention of the National Warm Air Heating and Ventilating Association which was held April 19 and 20 in Cleveland, Ohio, have been published in a volume of 108 pages, bound in handsome, stiff cloth cover.

Secretary Allen W. Williams is to be complimented on the completeness and correctness of the report and the members who were not present will find many items of interest and much real information.

#### *Will Study Air Conditions in Relation to Efficiency.*

In a recent report, F. Paul Anderson, director of Research Laboratory, American Society of Heating and Ventilating Engineers, Pittsburgh, Pennsylvania, indicates plan for studying the relation of air conditions to industrial efficiency, as follows:

The joint committee of the National Research Council and the American Society of Heating and Ventilating Engineers has inaugurated a series of records in factories.

Each record will run at least a year and will consist of an exact indoor and outdoor record of temperature, humidity, and variability, and of the average productivity of a series of operatives, there being a single number representing the efficiency of each person each day.

The Acme Wire company, New Haven, Connecticut, the Curtis

Publishing company, Philadelphia, Pennsylvania, the Joseph & Feiss company, Cleveland, Ohio, and the Westinghouse Electric & Manufacturing company, East Pittsburgh, Pennsylvania, propose to start such records at once.

Half a dozen other companies have indicated their willingness to start records in the fall, if business continues to improve, and there seems to be no doubt that other companies will co-operate so that 20 or 30 well distributed records will ultimately be available for factories of unusually high quality.

The expense of keeping the records and of turning them over to the committee in final form is in all cases being met by the factories.

The expense of furnishing the instruments is met by the Taylor Instrument Companies, Rochester, New York, which have agreed to lend to the committee a considerable number of very high grade recording psychrometers with fan attachments. These will give complete records of the highest accuracy.

Provision must likewise be made for supervision and inspection of the records by the sub-committee on the Industrial Effects of the Atmosphere.

Such supervision is partly provided for by the United States Public Health Service which is co-operating so far as its charter allows, and by the AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS in connection with its Pittsburgh Laboratory.

#### *Heating and Ventilating Guide Is Ready for Distribution.*

The first annual edition of the American Society of Heating and Ventilating Engineers' Guide is ready for distribution.

As stated in the preface of this excellent work, its purpose is to provide the engineer, the architect, and the contractor with a useful and reliable reference data book relating to the art of heating and ventilating.

Every effort has been made to present the material in a practical and usable manner. The volume

includes a summary of the findings of the Society's Research Bureau.

It contains many helpful tables, such as factors for computing heat losses from buildings, minimum chimney flue sizes and pipes recommended for warm air heaters, and the like.

### *Here Are Facts About Ozone for the Warm Air Heater Dealer.*

Considering the fact that ozonizing apparatus is being used in connection with warm air heaters, it is advisable to publish the following facts about ozone.

They are taken from an article by William J. Lohman of St. Louis, Missouri, in the Journal of the American Society of Heating and Ventilating Engineers:

There is nothing miraculous nor mysterious in connection with ozone or its effects.

Ozone is a chemical compound and a natural product, and its reaction and effects can be determined and controlled as accurately as any other chemical reaction. Ozone is particularly useful in all processes demanding oxidation. Its action as a purifying agent is based upon its great oxidizing powers.

In order to grasp just how ozone works, a brief explanation will be given of just what oxidation is.

The most rapid form of oxidation is fire which converts carbon instantly into carbonic acid gas with heat as a by-product.

Ozone, in a like manner, will convert carbon to carbonic acid gas, but the process is not accompanied by any appreciable degree of heat, and, therefore, ozone might be likened to a cold fire.

All organic matter contains more or less carbon as its principal base. Therefore, all organic matter is subject to any degree of oxidation that is necessary to produce any desired result by the use of ozone.

As already stated, ozone and fire produce identically the same chemical results.

The purifying power of fire has been known and resorted to for many centuries.

Ancient hieroglyphics dating from the year 4,000 B. C., picture surgeons holding surgical instruments to a flame before using them.

Mention is made several times in the old testament of the phrase, "purified by fire."

Explorers in Australia, Africa and other uncivilized countries speak of the natives burning their wounds and sores with hot spear points and actually placing the wounded parts in fire.

The great painting made by Lippo Lippi, in the early part of the fourteenth century shows the surgeons on the battlefield of Crecy each with two or three fire pots and various instruments protruding therefrom.

In the form of generators used by the Ozone Manufacturing Companies of America the electrodes which carry the high tension high frequency electric current are insulated by glass and mica dielectrics.

When the high tension current is turned into the electrodes its efforts to jump from one to the other produces what is known as static, or brush electric discharge in the space between the dielectric.

The ordinary atmosphere air is then drawn by means of a fan or its own weight between these electrodes, and, as it comes into contact with the electricity, it is instantly turned into ozone.

In some forms of ozone generators where the electrodes are exposed to the atmosphere (by this is meant, if the electrodes do not come in absolute contact with the dielectric, or if the points do not all touch the dielectric), certain atmospheric conditions, such as humidity, cause an arcing or sparks to form, and these sparks through their heat and energetic chemical action react upon the nitrogen and produce nitrous and nitric oxides.

These gases are both undesirable in an ozone generator, as previously stated.

The commercial uses to which ozone can be put to great advantage are innumerable.

There are many waste products for which there are no commercial uses, that can be converted into valuable products by the use of ozone.

There are also many products that are very cheap which can be made much more valuable by the use of ozone.

Ozone is exceedingly valuable as a bleaching and deodorizing agent.

As a germicide there is nothing equal to it when properly applied.

In discussing ozone with American manufacturers they are very prone to assume that something new is being talked about, and are likely to look upon it as more or less of an experiment.

This is very true as regards the use of ozone in the United States, but it has been used commercially in hundreds of different ways in Europe for the past thirty years, and the day is not far distant when American manufacturers will take advantage of ozone in their own industries and reap the same financial rewards that have accrued to manufactureres abroad.

A thing is only new to a person who has never heard about it, and many things may have existed for centuries, that by recent adoption, strike the general public as recent inventions.

An enterprising American manufacturer once secured a patent on the safety pin and every one supposed it was something new, but in the museum of Pompeii a perfectly good safety pin that had been found in the ruins from recent excavations, that in no respect differs from the safety pin of today.

Surgeons, for many years, were seeking a fore-speculum, and surgical instrument makers said that such a thing could not be made, but one day a perfectly good fore-speculum was discovered in southern Italy, which dated 400 years before the Christian Era.

These illustrations are used only to show that just because American manufacturers have heard little of the uses of ozone there is no basis for the assumption that ozone is something new.

# Practical Helps and Patterns for the Tinsmith.

Aids to the Improvement of Craftsmanship and Business.  
News from Various Branches of the Sheet Metal Trade.

## DISH BOTTOMS.

By O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis, Missouri. Written especially for American Artisan and Hardware Record.

In the making of dish bottoms for all sorts of tanks and various other sorts of vessels, a consider-

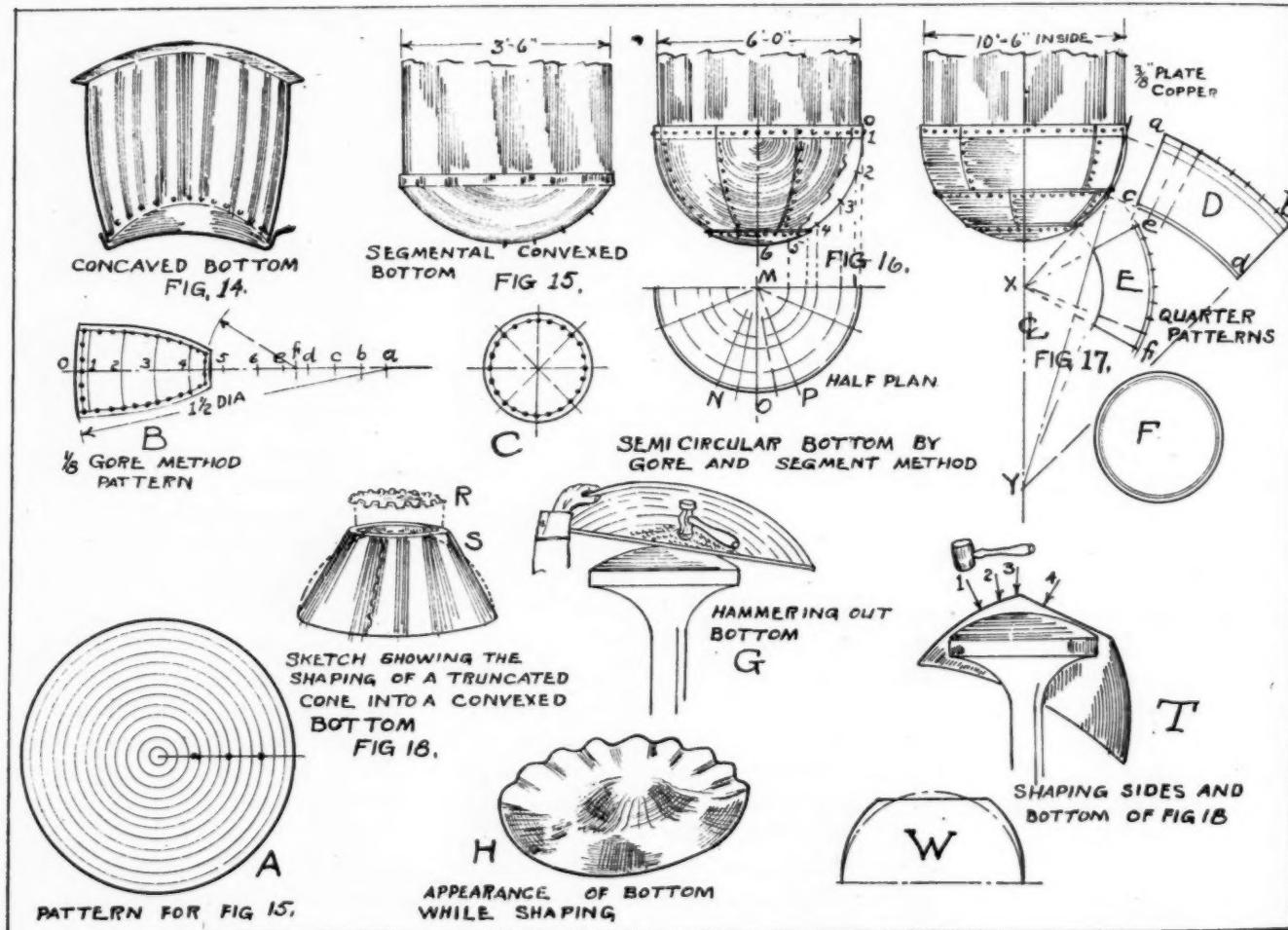
we show the pattern for the disc for the segmental convexed bottom of figure 15.

The main step is to determine the proper girth necessary to make the segment, so a half elevation is divided in any number of equal parts and these are stepped off on a line as in pattern A shown by the heavy dots.

ing the metal downward from one ring to the other but taking care not to stretch the metal too much.

This may be done by driving downward on your metal but pulling toward you in such a way that you neutralize the blow as far as stretching the metal goes.

By following up the rings to about half out to the edge, a shape



Dish Bottoms.

able experience is necessary to make a good job.

In figure 14, we have a concaved bottom.

There is not any difference between a concaved and a convex bottom, only in this, that a concaved bottom is reversed from the convexed bottom and the edges turned up as shown.

Near the bottom of plate at A,

This gives the girth or diameter required to make the convexed bottom.

Now to help the workman in shaping this bottom uniformly, small circles are described every 2 inches apart, as shown.

These circles are for controlling the hammer between rings as in sketch G.

We start with the center, work-

similar to sketch H will be produced; that is, the outer edges will become wrinkled and buckle all out of shape.

But by continuing the working hammering out from one ring to the other, these wrinkles will be smoothed out as shown on the near side of sketch.

About this time the copper will have become quite hard and springy

because of the considerable hammering it has received.

So it is placed on the forge and heated to a cherry red and is plunged in a vessel of cold water.

This cold water does not soften it but only facilitates immediate working, otherwise you would have to wait until the metal became cool of itself.

It is the heating of the copper which expands the structure of the metal and causes it to soften, while in the hammering processes, a structure of the metal is condensed and makes it hard and springy.

So, this process of treating the bottom from the center outward is continued after each heating until the desired shape has been worked out.

In order to hammer out a dished bottom, several trials are necessary before the proper swing and right idea is adopted, because some workmen can shape up a bottom in a very short time while others can play around with it for several days and then not make a decent looking job.

At figure 16, we have a convexed bottom made to a semi-circle by the gore method treatment.

These gores can be made in quarter pieces or eighths.

In this case we use eighths. The elevation is divided in equal parts as 1-6 and these are set on a straight line as 1-6 in pattern B.

Then make the distance o-a equal to  $1\frac{1}{2}$  times the diameter of vessel, which in this case would be 9 feet from o to a.

Then divide the distance between a and point 6 in the same number of equal parts, which gives spaces b-c-e.

Now as we make a seam between points 4 and 5 in elevation, so we must subdivide the space d-e and obtain point f.

So, we describe arcs o also 1 from center a, and arc 2 from b, arc 3 from c, arc 4 from d and the bottom edge from f.

From plan as faces on the lines O-P we set off the girth on these arcs in pattern and that enables us to draw the outline.

After this we step off the rivet holes and also lay out the pattern for bottom C, which must be dished.

These gore patterns as at B must also be hammered out to conform with the curvature of elevation.

The workman should observe that in these semicircular bowls the nearer they come to the top the straighter the arcs become, and in a very large bowl in diameter the top edge would be almost straight.

Of course, with copper the metal can be worked and so more depends on working the metal than on the pattern, because a well-developed pattern can be easily worked out of shape so there is no semblance to the pattern after it is shaped up.

Then at figure 17 we have a similar bowl made by the zone method where 1 or 2 or 3 zones or belts are made and developed on the principle of the cone.

This is shown by extending the lines for zones to apex X and Y, also in describing the patterns D and E.

Observe the circumference is first set out along the top line a-d of pattern D.

Then draw radial lines to the apex Y and this will establish points on the throat line c-d.

Now pick these spaces from the throat line and set them on the heel line of pattern E as e-f and that will give the circumference of the second pattern to conform with pattern D.

Observe that by treating it in this way you are bound to have your circumferences equal since the patterns E and D must join together.

The length of these patterns, whether they be made to the quarter circumference or half circumference, or anything else, must be governed by the way the patterns will work out of the sheets.

The lower dish pattern F is described equal to the radius of the arc.

Rivet holes must be stepped off on these the same as shown for the patterns in figure 16.

These zones or belts must be hammered out so as to conform with the curvature of elevation.

It is also necessary to work from a neutral line in developing these since  $\frac{3}{8}$  plate is specified.

Generally, however, copper-smiths allow ample edges all around so the patterns are not required to be developed so fine, as in that case the surplus stock can always be turned off.

But close working and needless trimming is not a virtue, since to trim off the piece several times consumes quite a bit of labor, that could otherwise be put to good advantage.

Smaller bowls are often worked up out of a frustum of a cone as in figure 18, where the bottom R is dovetailed into the body S and brazed, after which it is hammered into shape, much as the sketch W shows by degrees, or the sketch T which shows the rings in which the mallet would be applied, as at 1-2-3-4 in successive circles around the article.

In that way the obtuse angle would be taken out and rounded up.

But this is quite a job and it is a splendid thing for young journeymen to develop their capabilities and increase their achievements by trying their hands on, because they will soon find that it takes considerable time to work up something like this.

#### Bureau of Mines Tells Story of Steel in Picture Films.

A six reel motion picture film, "The Story of Steel," has been produced under the auspices of the U. S. Bureau of Mines of the Department of the Interior and the U. S. Department of Commerce in co-operation with the United States Steel Corporation.

It will be used extensively in the United States and abroad for the purpose of acquainting the peoples of the world with the many interesting operations employed in the American steel industry.

The film depicts the various processes from the mining of the iron ore to the finished steel product, passing through the transportation period, blast furnace operations, and

the making of steel by the Bessemer, open-hearth and electric processes.

The manufacture of rails, plates, shapes, axles, rods, wire products, pipe, tinplate and other products of steel is told in a graphic way, and before the picture is brought to a close the audience is shown the

many welfare and social activities which are carried on by the United States Steel Corporation for the benefit of its employees.

This film will be shown at the World's Fair to be held this year in Rio de Janeiro, Brazil, and eventually be shown before the leading engineering and commercial organ-

izations in various parts of the world.

The film will be loaned without cost to all dependable persons desiring to use it for educational purposes.

Application should be made to the U. S. Department of Commerce, Washington, D. C.

## *Jim Cutler Tries to Shake a Small Nut to the Top of the Box but the Big Nuts Keep It Down.*

*Greenberg Pulls a Lesson from an Everyday Incident That Every Sheet Metal Man Should Apply to His Business.*

Written Especially for AMERICAN ARTISAN AND HARDWARE RECORD by J. C. Greenberg, Cleveland, Ohio.

JIM CUTTER and I were talking about a bill he owed us, and I wanted him to pay up. He told me all about his hard luck, showed me his bank book with seventeen dollars balance, while the bill was twenty-seven dollars.

Jim protested something like this: "If I pay you part of the bill, I can't pay for that vulcanizing job on the tire for my 'Lizzie,' and when that 'Lizzie' is sick, I'm out'a luck. I wish you would write the firm that I will pay as soon as I get paid for that roof paint job. You can square me, I know."

What do you suppose I could do? Jim was a good fellow at heart but a poor business man in his head. It seemed that his head and his heart were not doing any team work whatever.

While we were talking, a small kid came in to have Jim put a nut on his bicycle, so he could run it. He told the kid to leave it and come back in an hour. As soon as the kid was gone, Jim and I began where we left off—namely—I wanted money. Jim was sincere and could not pay, I did not have the nerve to insist, so he bulled me into another small shipment which he got all right.

Jim then tackled that bicycle. He found that he needed a small nut which holds the seat rigid. He took out an old tin tobacco box and began to shake it in order that he

might find the size nut he needed. In that tin box there were several sizes, both large and small. He shook the tin box, but the big nuts came to the top and the little one that he wanted persistently insisted on staying on the bottom.

Jim began to cuss. The more he shook the tin box, the more he cussed. Finally he set the box down, and turning to me said, "Can you beat it? I know that I have the very size nut I want, but the doggone thing won't come up. The big ones all come up just to kid me, I guess, but the small one is at the bottom."

"Why don't you empty the box on the bench and pick out the one you want. You have wasted more time trying to find that nut than the whole job is worth," I suggested.

"I never thought of that," Jim replied.

Well, he emptied all of the nuts on the bench, picked out the little one he wanted and taking a small wrench had the seat fixed in less than two minutes.

The boy came back with a dime in his hand and handed the dime to Jim. Jim looked at the dime and looked at me, and placed the dime in his pocket. He just about came out ten cents loser considering the time that it took to shake the little tobacco box. But this is not what I want to bring out. While we were

talking, another salesman came in, but did not have a chance to sell Jim anything because as Jim put it, "I am full up now." So the salesman left us and went to the next victim.

Conversation seemed to lag for a minute or so; Jim seemed to have nothing to say, so I spoke up. "Jim, did you notice how that little tin box full of nuts made you cuss? Did you notice the reason for it?"

"Sure I did," Jim answered. "I was trying to shake the little nuts to the top of the box, and they would not come up, so I got sore. Why do you ask?"

"I merely asked to see if you knew the reason WHY the little nuts stayed down at the bottom of the box."

"I guess I shook that box too hard perhaps," Jim answered, looking at me in a puzzled sort of a way.

"No, that was not the reason Jim," I replied. "The real reason is that the big nuts were in the way. You tried unconsciously to do the impossible. The big nuts always come to the top because the little ones cannot push them aside. It is the same in business when the little business man tries to push the big business man aside. It cannot be done. The little nut must always stay at the bottom."

"Well what about it?" Jim asked. "This much about it Jim," I re-

plied. "You are a little nut in the business box, and are always at the bottom. Why don't you expand and become bigger, so that you too will be on top, just like the big nuts in the box you tried to shake?"

"What you say is easier said than done," Jim protested. "It takes money to become a big nut in business. If I had plenty of money I, too, would be a big nut and be at the top."

"You are making a mistake in saying that, Jim," I answered. "It is not money that you need; it is nerve. You are only as small as you think you are. You are trying to earn your living by the sweat of your brow instead of the sweat of your brain. If you give a smart man a dollar he will become a millionaire; but if you give a fool a million dollars he will wind up with less than a dollar at the end. The reason you have no money is that you do not ask a profit for your work. If you figured for profit, instead of wages, you would have money."

"All that is all right if I had about a thousand dollars to start with," Jim sighed.

"Jim, I will tell you how to get a thousand dollars if you will do as I ask you," I said.

"First remember that you are at present a poor man, and no poor man ever saved a thousand dollars all at once. He saved his dimes and quarters till they piled up and made a total of a thousand dollars. If you will figure a certain percentage of profit on every dollar you will have a thousand dollars before you realize it.

"Please understand me, Jim, your salary that you draw is not profit—it is overhead. Profit is what you save over and above that. You must make up your mind that every dollar should contain so many cents for profit that you can save toward that thousand dollars."

Jim was silent. Not a word did he speak.

"Remember Jim," I went on, "You must not wait for one job to give you this thousand dollars. It will take many little jobs to do it,

but little by little that thousand dollars is piling up.

"Make every day a successful one, and these successful days will also pile up and make a successful year. If you will do this, you will become a big nut and will always shake up to the top, and the little nuts will be at the bottom of the box. Do you get me, Jim?"

"I get you all right," Jim replied. "Believe me, I am glad that the little kid stopped in to get that nut put on. I am glad that I have learned a lesson."

Just then, that little kid rode by on the bicycle and Jim ran to the door, called the kid back and actually pulled a quarter from his pocket and gave it to the kid.

Dear reader, what kind of a nut are you? Are you a little nut at the bottom of the box, with all of the bigger nuts on top of you?

When the business shake up comes around, how do you travel? Do you go up or down? Maybe you are in Jim's class; if so, get the same action that Jim did and become a bigger nut. There is more room on top than at the bottom of the box. The sky is the limit—but it depends on yourself whether you are a success or a failure. Did you ever notice that success is spelled with a "U"? You are the best letter in your own success. Make the little "i" a capital "U."

#### *Angermyer Appreciates Promptness of Convention Report.*

For many years, AMERICAN ARTISAN AND HARDWARE RECORD has been the only trade paper in our field which has published the complete reports of trade conventions the same week in which they were held.

This, of course, requires special attention which we are always glad to give, but it is also pleasant to receive letters like the following, showing that our subscribers are appreciative of our efforts to serve them:

To AMERICAN ARTISAN:

In behalf of the Sheet Metal Contractors' Association of Penn-

sylvania and myself, I wish to thank AMERICAN ARTISAN AND HARDWARE RECORD for the splendid report of our annual convention published in the July 29th issue and congratulate you on the promptness in which this was produced.

It is always a real pleasure to have your Mr. Pedersen with us and assures us of your continued friendship and cooperation.

Again thanking you for your splendid cooperation and with kindest regards and best wishes for your success, I remain

Yours very truly,  
W. F. ANGERMYER,  
Secretary.

Pittsburgh, Pennsylvania, July 31,  
1922.

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#### *Gives Data for Use of Copper Roofing.*

"Cooper Roofing—Information for Architects and Roofing Contractors," is the title of a booklet just published by the Copper and Brass Research Association.

The booklet contains some interesting general information about copper, including a table of weights of various roofing materials for each 100 square feet laid, 16-ounce standing seam copper weighing 125 pounds and copper shingles 84 to 100 pounds to the square, as compared with 1,200 to 1,800 pounds for shingle tile, 450 to 675 pounds for slate, and 300 to 650 for asbestos shingles.

The use of copper on flat roofs, as well as the ribbed seam and standing seam methods, is discussed.

Information concerning copper shingles, flashings, gutters and eaves-trough is also given, together with some suggestions concerning the natural coloring of copper, a peculiar advantage which copper has over other roofing materials.

Condensed specifications covering copper roofing, cornices, flashings, etc., are supplied, accompanied by four drawings, containing 26 figures giving helpful detail.

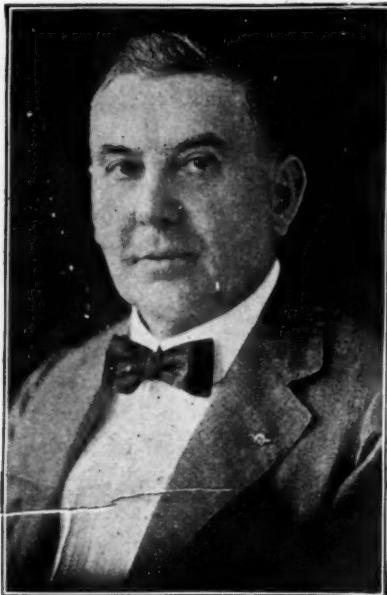
The booklet is compact and thoroughly indexed. Copies are furnished by the Building Service De-

partment of the Copper and Brass Research Association, 25 Broadway, New York, and in a prefatory note the services of that department are offered to architects and roofing contractors.

### *Clayton & Lambert Salesman Is Presented with Gold Watch.*

There are very few road salesmen who are better known to the jobbing trade than Charles A. Bower, representing the Clayton & Lambert Manufacturing Company, Detroit, Michigan.

For twenty years he has traveled from coast to coast, explaining and demonstrating the qualities and im-



C. A. Bower.

proved features of the C. & L. line of gasoline fire pots, torches and brazing fires.

In appreciation of his loyalty and twenty years of service with the Company, Mr. Bower was recently honored at an informal dinner given by the management to 125 members of the office and factory heads of departments.

A gold watch was presented to him by the Company and a shrine pin by his fellow workers in the organization.

Patches that decorate the trousers of a calamity howler are not on the knees.

### *Pennsylvania Sheet Metal Auxiliary Is Growing.*

The report of the Secretary of the Distributors' and Salesmen's Auxiliary of the Sheet Metal Contractors' Association of Pennsylvania, rendered at its annual meeting, Thursday, July 27th, in Erie, Pennsylvania, shows that this organization which is only about six months old is growing at a healthy rate.

Secretary Oliver C. Brooks reported that the membership showed fifty-one members in good standing as follows:

C. J. Besore, Wheeling Corrugating Company, Philadelphia.

Louis G. Bross and W. F. Busch, Berger Brothers Company, Philadelphia.

O. C. Brooks, Carter Donlevy Company, Philadelphia.

J. H. Crago, Follansbee Brothers Company, Pittsburgh.

Samuel Corbman, Corbman Brothers, Philadelphia.

Francis O. Carfer, J. M. & L. A. Osborn Company, Cleveland, Ohio.

George J. Clautice, Lyon, Conklin & Company, Baltimore.

Thomas R. Cook, Jr., Riter Brothers Company, Philadelphia.

Warren Carter, Carter, Donlevy Company, Philadelphia.

Harry S. Criswell, McClure, Johnson Company, Pittsburgh.

Wm. H. Evans, Pecora Paint Company, Philadelphia.

J. McD. Ferguson, McClure, Johnston Company, Pittsburgh.

R. R. Foulke, York Corrugating Company, York.

B. Walter Fleck, Riter Brothers Company, Philadelphia.

H. M. Forrest, Wheeling Corrugating Company, Philadelphia.

Charles A. Fink, Lyon, Conklin Company, Baltimore.

O. Roy Frankenfield, Fable Company, Incorporated, Philadelphia.

Matthew Gray, Wheeling Corrugating Company, Philadelphia.

William J. Gowern, Jr., McClure, Johnston Company, Pittsburgh.

Elwood Gehret, Thompson & Company, Philadelphia.

George J. Gock, Gummey McFarland & Company, Philadelphia.

Henry S. Homan, L. D. Berger Company, Philadelphia.

Herbert V. Jennings, Cooperative Foundry Company, Rochester, New York.

George O. M. Johnson, McClure, Johnston Company, Pittsburgh.

R. L. McHale, David Lupton Sons Company, Philadelphia.

Charles T. Mohr, Penna Supply & Manufacturing Company, Allentown, Pennsylvania.

Abe B. Neiman, Fow Manufacturing Company, Philadelphia.

R. K. Pearce, Fred. J. Knoedler, Philadelphia.

Thomas J. Quinn, W. F. Potts Son & Company, Philadelphia.

M. R. Rupp, Riter Brothers Company, Philadelphia.

Howard Rice, Hall & Company, Philadelphia.

George H. Rotz, March Brownback Stove Company, Pottstown, Pennsylvania.

Richard J. Smith, Carter, Donlevy & Company, Philadelphia.

Edwin A. Scott, Sheet Metal Worker, New York City.

F. M. Toms, National Lead & Oil Company of Pennsylvania, Pittsburgh.

F. H. Wilberding, The Ferbert-Schorndoerfer Company, Cleveland, Ohio.

W. F. Wolohan, Wheeling Corrugating Company, Philadelphia.

B. S. Whittengton, Lyon Conklin & Company, Baltimore.

E. A. Reed, R. B. Warren, E. C. Acker, B. A. Morrison, A. J. Stanff and Charles K. Semple, Demmler Brothers Company, Pittsburgh.

D. C. Boyer, W. F. Potts Son & Company, Philadelphia.

A. G. Pedersen, AMERICAN ARTISAN AND HARDWARE RECORD, Chicago.

Walter E. Keist, Haynes Langenberg Manufacturing Company, St. Louis, Missouri.

E. D. Harper, Follansbee Brothers Company, Pittsburgh.

John Slater and E. T. McNulty, Charcoal Iron Products Company, Washington, Pennsylvania.

A roster of the membership will be printed on heavy cardboard and furnished to every member of the Sheet Metal Contractors' Association of Pennsylvania, to be hung in his shop, so that he can easily refer to it and thus ascertain whether the salesman who calls on him is a member of the Auxiliary and thereby shows his willingness to help the contractors promote the welfare of the business.

The date for publication of this roster has been set for September first, and in the meantime a vigorous campaign is being conducted by the officers and members to give every salesman and distributing house catering to the sheet metal contractors in Pennsylvania an opportunity to join this worthy movement.

The officers and directors who were chosen in Reading early in the Spring were re-elected to serve until July, 1923, with the exception of John Follansbee, who found it impossible to serve, owing to his heavy duties in connection with the new steel mill which his Company has recently started to operate at Toronto, West Virginia. Francis O. Carfer, of the J. M. & L. A. Osborn Company, Cleveland, Ohio, was elected in Mr. Follansbee's place.

The officers and directors follow:

President—THOMAS R. COOK.  
First Vice-president — WARREN

CARTER.

Second Vice-president—C. J. BESORE.

Secretary—OLIVER C. BROOKS,  
2138 North 19th Street, Philadelphia.

Treasurer—WILLIAM J. GOWERN, JR.

Directors—GEORGE J. CLAUTICE,  
T. O. CARFER, GEORGE GOCK,  
THOMAS J. QUINN and GEORGE M. JOHNSON.

### *Attorney General Approves Steel Mergers.*

Attorney-General Daugherty has informed the Senate by letter that in his opinion, the proposed merger of the Bethlehem-Lackawanna and of the Midvale-Republic-Inland properties will in no way violate the Sherman act, the Clayton act or the Webb act, and there is not the slightest ground for belief that if the plans for merging are carried out, restraint of trade or monopolistic control would result.

The two mergers in question are unrelated to each other and are in process of formation.

One is between the Bethlehem Steel Corporation, owning plants in Pennsylvania and Maryland; and the Lackawanna Steel Company, whose plant is at Buffalo.

The other merger is by the Midvale Steel and Ordnance Company, owning plants in Pennsylvania and Delaware, the Republic Iron & Steel Company, owning plants in Ohio, furnaces in Pennsylvania and Alabama, and certain plants in East Chicago and Muncie, Indiana, and Moline, Illinois, and the Inland Steel Company, owning plants close to Chicago.

Instead of restraining trade the Attorney-General holds that the mergers are calculated to result in a furtherance of trade.

His letter of about 9,000 words goes into details of the production, competitive and other phases of the business of the companies concerned.

With respect to the proposed

Midvale - Republic - Inland merger, Mr. Daugherty's opinion takes up the products common to all three of these companies and presents sales figures, showing the geographical distribution of the products and the percentage which the production of these companies bears to the entire production in the United States.

Setting forth that these companies manufacture pig iron, blooms, billets, slabs, rails and merchant bars, etc., the opinion states that there was very little competition (in 1920) in any but the last of these items, that merchant bars are the most important in the steel industry in point of tonnage and Midvale's contribution to this production was 2.72 per cent, Republic's 4.77 per cent, and Inland's 1.75 per cent, or 9.44 per cent in all.

Dealing with the question whether the Midvale-Republic-Inland merger violates the Sherman act, Mr. Daugherty says:

"I see nothing in the proposed merger that offends this act. In my opinion there is not the slightest ground for supposing that it will result in any restraint of trade or monopolistic control."

"The plants of these companies are widely scattered; and my investigation leads to but one conclusion and that is that the underlying purpose of this combination is not to acquire a monopoly or to restrain trade, but to enable the new company more effectually to compete with the United States Steel Corporation, which, because of the wide distribution of its various plants and their easy accessibility to the sources of raw materials, is enabled to produce and sell its products much cheaper than other manufacturers.

"Instead, therefore, of being in restraint of trade, the new combination will be in furtherance of trade."

### *Michigan Sheet Metal Folks Say "Thank You."*

The Annual Outing of the Michigan Sheet Metal and Roofing Contractors' Association is a thing of

the past, but there remain the pleasant recollections of a fine trip for those who took part and also their appreciation of what the Chicago Entertainment Committee, with the help of many manufacturers and distributors, did to make the day spent in Chicago an enjoyable one.

The following letters have been received from Secretary F. E. Ederle:

To AMERICAN ARTISAN:

The seventh annual outing is now a matter of history but I think you will agree that it was an affair which will not soon be forgotten by those fortunate enough to attend.

So far as the writer is concerned he is mighty well satisfied from every standpoint.

I will take this opportunity of thanking AMERICAN ARTISAN for its liberal publicity and cooperation in making this the greatest event in the history of the organization. If you will let me know how to return your kindness I shall be glad to do so.

Again thanking you for your many courtesies I am,

Truly yours,

F. E. EDERLE.

Grand Rapids, Michigan, August 1, 1922.

The letter to the Chicago Entertainment Committee follows:

Chicago Entertainment Committee  
J. Harvey Manny, Chairman:

The purpose of this letter is to express to you and the other members of the Chicago Entertainment Committee the appreciation of our members for the splendid entertainment furnished them while in Chicago for the seventh annual outing.

In reviewing our stay in your city we are unable to discover anything which could have been added to increase our pleasure. In fact it was as nearly a one hundred per cent affair as is possible.

We surely enjoyed the hospitality of the Chicago manufacturers and jobbers and hope our conduct was such as would show our fullest appreciation.

Again thanking you for the many courtesies we remain,

Truly yours,

F. E. EDERLE.

Grand Rapids, Michigan, August 1, 1922.

The Chicago Entertainment Committee consisted of the following:

J. Harvey Manny, Manny Heating Supply Company, chairman; Ralph W. Blanchard, Hart and Cooley Company; T. E. Warner, Tuttle and Bailey Manufacturing Company; D. E. Cummings, Thatcher Furnace Company; Charles E. Glessner, Excelsior Steel Furnace Company, and Etta Cohn, AMERICAN ARTISAN AND HARDWARE RECORD.

The firms and companies who were hosts during the day spent in Chicago follow:

#### List of Hosts.

American Sheet & Tin Plate Company.  
American Artisan and Hardware Record.  
Carr Supply Company.  
A. M. Castle & Company.  
Central Heating Supply Company.  
Chicago Furnace Supply Company.  
Cicero-Chicago Corrugating Company.  
Cole Manufacturing Company.  
Dreis & Krump Manufacturing Company.  
Excelsior Steel Furnace Company.  
Follansbee Brothers Company.  
Friedley-Voshardt Company.  
Furnaces and Sheet Metals.  
Hart & Cooley Company.  
Inland Steel Company.  
Manny Heating Supply Company.  
Minneapolis Heat Regulator Company.  
National Lead Company.  
J. L. Perkins.  
Sheet Metal Worker.  
Thatcher Furnace Company.  
Tuttle & Bailey Manufacturing Company.  
Utica Heater Company.  
H. F. Watson Company.  
Wheeling Corrugating Company.

#### *Here Are the Main Facts Concerning Zinc.*

On the ground that the more a craftsman knows about the material which he uses, the better is the work he does, the following facts concerning zinc are reprinted from a booklet issued by the Illinois Zinc Company, Peru, Illinois:

Zinc is believed to have been first distinctly recognized as a metal by Paracelsus about the year 1600 A. D., but in the metallic state it

has been of importance in art only during the past hundred years. In combination with copper it forms the well-known alloy metal called brass.

In the sixteenth and seventeenth centuries zinc was imported from China into Europe under the names of Spianter and Spialter; hence the English word spelter, which is the term used by the trade for commercial ingot zinc.

The uses of zinc have been numerous and important, but only in recent years has zinc been recognized as a metal of wonderful possibilities in drawing, spinning and stamping. It is non-corrosive and everlasting—qualities which make it a valuable metal for exposure to the weather. It has been used exclusively in Europe for roofing during the past 50 years.

The production of zinc in the United States has had a steady growth since its introduction as an industry prior to the Civil War.

Spelter bears the same relation to zinc ore in the process of manufacture as does pig iron to iron ore.

Sheet zinc is the product of wide rolls in sheets of large size and in various gauges. Due to the method of rolling, the surface has a fine homogeneous texture and a polish which oxidizes but slightly when exposed to the air.

The standard stock container in which shipments are made is a metal cask containing 600 pounds of zinc sheets. These sheets, however, are furnished cut to size to meet the requirements of the purchaser and where desired are packed flat in wood boxes.

Sheets are packed also in casks of 100, 200 or 300 pounds, for the convenience of the jobbing and hardware trade. Selected sheets are produced for lithographers' and paper makers' use and are specially rolled on one side for this purpose. They are also produced for photo engraving and etching purposes.

Strip or Ribbon zinc is the product of narrow rolls and is rolled into long lengths of 150 to 300 feet and coiled.

This form is used extensively on automatic machines for eyelets, buttons, etc., and has a softer surface than the regular wide sheets. Ribbon zinc can be supplied in various gauges and widths to meet the needs of the purchaser.

All rolled zinc is malleable and ductile and can be used in drawing, spinning, stamping or punching.

It can be buffed, polished and lacquered to retain its natural color. It takes a fine plating in nickel, copper or brass and can also be easily japanned.

Rolled zinc plates, used to prevent corroding of boilers, are furnished in sizes to meet the requirements of the purchaser and are usually  $\frac{1}{2}$  inch or  $\frac{3}{4}$  inch in thickness, 6 inches by 12 inches, up to 24 inches by 48 inches. The heaviest plate we produce is about 1 inch in thickness.

Sheet zinc has practically no magnetic qualities, being classed as a diamagnetic substance. The following is a summary of tests on zinc:

Zinc, either rolled or cast, has no well-defined yield point and its elastic limit is very low. Zinc possesses a relatively high degree of plasticity.

The ultimate strength of rolled zinc plate (thicker than .05 inch) is about 21,000 lbs. per square inch.

The stress per square inch of area sheared, developed in punching or shearing rolled zinc plates, is about 40 per cent of the stress developed in punching or shearing mild steel plates.

The energy per square inch of area sheared per inch thickness of plate required to punch or shear rolled zinc plates is about 30 per cent of the energy required to punch or shear mild steel plates.

The electrical conductivity of zinc is 25.6 to 29.9, according to determinations of several observers, and its thermal conductivity 28.1, compared in both cases with silver as 100.

Zinc melts at a comparatively low temperature, its melting point being 419 degrees Centigrade; it boils at 950 degrees Centigrade,

the vapor burning in air with a characteristic brilliant bluish green flame.

According to Ingalls, zinc burns in the air at a temperature as low as 500 degrees Centigrade. When it passes from cold solid to the molten condition zinc increases in volume 11.1 per cent. It contracts but slightly on cooling from the molten state, and is thus well adapted for castings.

The ductility of rolled zinc is much less than that of mild steel and the ductility of zinc plates with the grain is greater than the ductility across the grain.

Zinc responds very little to hardening or annealing treatments.

The coefficient of expansion of zinc is 0.000029 per degree Centigrade.

The expansion and contraction of zinc by heating and cooling is about 2.6 times that of iron and about 1.3 times that of tin.

Due to its fibrous structure, sheet zinc does not tend to crystallize or crack from vibration.

Zinc is not affected in dry air at ordinary temperatures. In damp air it becomes coated with a very thin layer of hydrated basic zinc carbonate (due to carbon dioxide in the air), which layer is sufficiently dense to protect the metal from any further atmospheric action; consequently, it is not necessary under normal conditions to protect zinc with paint or other protective coatings.

It is possible to braze or weld sheet zinc under very limited conditions, as the welded portion is of a coarse crystalline structure and easily fractured along the weld.

Sheet zinc is more readily folded across the grain than with the grain and up to .05 inch thick will fold flat either across or with the grain, without cracking. Sheets of greater thickness will fold across the grain.

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That plan your competitor is using to get business away from you is probably one he found in the trade paper he reads and that you merely "take."

### Notes and Queries

**"Roesco" Enameled Steel Ranges.**  
From C. J. Johnson, Dell Rapids, South Dakota.

Kindly advise me who makes the "Roesco" enameled steel ranges.

Ans.—Roesch Enamel Range Company, Belleville, Illinois.

**Rubber Truck Wheels.**  
From Reiche Brothers, 18-20-22 Main Street, Naperville, Illinois.

Please tell us where we can purchase rubber wheels for two wheel trucks.

Ans.—Automotive Wheel Service, Incorporated, 577 East 35th Street; Sewell Cushion Wheel Company, 2711-2717 South Wabash Avenue; both of Chicago, Illinois.

**"Little Wonder" Furnace.**  
From George E. Roesch, 386 New York Street, Aurora, Illinois.

Can you tell me who makes the "Little Wonder" warm air furnace?

Ans.—South Beloit Stove and Manufacturing Company, Beloit, Wisconsin.

**Potato Spray Pumps and Nozzles.**  
From Priebe Brothers, 512 Superior Street, Antigo, Wisconsin.

Please advise us who manufactures potato sprayer pumps and nozzles.

Ans.—Deming Company, Salem, Ohio; F. E. Myers and Brother, Ashland, Ohio; Potato Implement Company, Traverse City, Michigan; and Starr Brass Works, 3129 Carroll Avenue, Chicago, Illinois.

**Oil Burners for Furnaces.**  
From Chris Ehlinger, Vinton, Iowa.

Kindly tell me who makes a good oil burner for furnaces.

Ans.—McEwen Furnace Company, Department 103, 15th and Brooklyn, Kansas City, Missouri; American Foundry and Manufacturing Company, 710 K. C. Life Building, Kansas City, Missouri; Breeding Heat and Power Corporation, 311 Vine Street, Cincinnati, Ohio.

**"Becker" Soda Fountain Bar.**  
From G. H. Mellor, Ames, Iowa.

Can you tell me who manufactures the "Becker" soda fountain bar, as I desire to secure repairs for it.

Ans.—The Bishop and Babcock Company, 1616 Burlington Street, Chicago, Illinois.

**Oil Burners for Furnaces, Boilers, Etc.**  
From Louis I. Drackert, Tipton, Missouri.

Please advise me who makes a good oil burner for furnaces, boilers, etc.

Ans.—McEwen Furnace Company, Department 103, 15th and Brooklyn, Kansas City, Missouri; American Foundry and Manufacturing Company, 710 K. C. Life Building, Kansas City, Missouri; and Breeding Heat and Power Corporation, 311 Vine Street, Cincinnati, Ohio.

**Lawn Mowers and Lawn Rollers.**  
From Joseph Werndl, 213 East 12th Street, Coffeyville, Kansas.

Will you kindly advise me who manufactures lawn mowers, 36 inch cutting; also who makes lawn rollers.

Ans.—1. Clipper Lawn Mower Company, Dixon, Illinois; Coldwell Lawn Mower Company, Newbury, New York; Philadelphia Lawn Mower Company, 3101 Chestnut Street, Philadelphia, Pennsylvania; Pennsylvania Lawn Mower Company, 1615 North 23rd Street, Philadelphia, Pennsylvania. 2. Dumble Company, Berea, Ohio; and Harriman Manufacturing Company, Harriman, Tennessee.

**Furnace Repairs.**  
From Charles Robinson, Edinburg, Pennsylvania.

Please tell me who can furnish furnace repairs for all makes of furnaces.

Ans.—Northwestern Stove Repair Company, 654 Roosevelt Road, Chicago, Illinois; Central Stove and Furnace Repair Company, 1801 Diversey Parkway, Chicago, Illinois; and National Stove Repair Company, Miamisburg, Ohio.

**"Arex" Ventilator.**  
From Louis Altman, 306 Market Street, Brownsville, Pennsylvania.

Will you kindly inform me who makes the "Arex" ventilator.

Ans.—The Arex Company, 111 West Washington Street, Chicago, Illinois.

**Chicken Nest Factory.**  
From Neubeiser Heating and Plumbing Company, Belle Plaine, Minnesota.

Can you give me the name and address of a company that makes chicken nests?

Ans.—The Gem Products Company, Greenville, Ohio.

# Review of Conditions in the Metal Markets.

## General Situation in the Steel Industry. Report of Prices and Tendencies in Sheet Metals, Pig Iron, etc.

### COPPER MARKET IS STILL ACTIVE.

Considering the heavy sales which were made in March, April, May and June, business in copper keeps up remarkably well.

Deliveries into domestic and foreign consumption in July probably exceeded refined output by 10,000,000 to 20,000,000 pounds.

This would indicate that refined stocks held by producers outside of those put aside for export are not much if any over 100,000,000 pounds.

The larger refined and smelter output that may be expected in the next few months, notwithstanding the shortage of miners, apparently will be none too heavy to meet the increasing domestic and foreign demand.

The tendency is for further hardening of prices, there being few if any producers now willing to accept orders for electrolytic at 14 cents delivered to domestic consumers.

European prices continue to range from 14½ cents to 14¾ cents, cost, insurance and freight, European points, according to time of shipment.

Brass sheets meet a good demand from spinners and stampers and brass tubing is also brisk.

The demand for copper roofing continues satisfactory but copper bottoms are dull.

The radio business has fallen off somewhat during the past week causing a decrease in the sale of brass rods and copper radio wire.

"In view of the fact that it is Summer and the nation is being troubled by two country-wide labor strikes, it is surprising that business continues good," said a manufacturer.

"In the past week we advanced prices of our products following the example of the leading interest.

"At our mills brass tubing and brass sheet departments are very busy.

"The demand for radio products, generally has fallen off reflected in a decided decrease in sales of brass rods and copper radio wire."

The big supplies of scrap copper, which for two years have been active competitors of the virgin metal no longer are to be feared.

They are practically exhausted, except for the normal amount which must always be considered.

Copper does not wear out and can be recovered in part even where it is combined with zinc in the form of brass.

A certain amount of this so-called secondary metal always must be figured on.

It was the abnormal of war supplies which hurt the virgin copper situation following the war.

At least this was one adverse factor. The others included poor general business and the widespread use of substitutes.

Good headway has been made in reinstating copper in its old-time place and regard among consumers.

This is reflected in the growing consumption of copper in this country.

A little later as big construction gets under way and unrestricted by labor difficulties a two-fold increase will come in consumption—that normally to be expected in times of industrial expansion and that due to new uses and the reinstatement of the metal where substitutes have been taking its place.

### Tin.

According to statistics compiled by the New York Metal Exchange, the world's visible supply of tin decreased 2,064 tons during July.

August 1st showed a visible supply of 21,502 tons, as against 23,566 tons on July 1st, and 19,358 tons on August 1, 1921.

This decrease was brought about by the falling off in the Straits shipments which were only 4,035 tons in July as compared with 6,505 tons in June and an average of 5,400 tons a month during the first half of the year.

It is probably a fact that more tin was shipped from the Straits during the first six months of this year than was produced but the July shipments of 4,035 tons must have fallen short of the output, so that the reduction in the visible supply the past month was partly offset by an increase in invisible supplies.

### Lead.

The lead market shows a tendency toward higher prices.

Producers, however, are not anxious for a "bull" market now any more than formerly, preferring a stable condition to one out of control.

The outlook for Fall consumption appears to be excellent.

A good volume of business is reported, much of it for prompt and August, but a good deal also for September, some at fixed prices and some on an average contract basis.

Chicago prices of lead advanced 5 cents per hundred pounds.

### Solder.

Chicago warehouse prices on bar solder are as follows: Warranted 50-50, per 100 pounds, \$22.25; Commercial 45-55, per 100 pounds, \$20.75; and Plumbers' 40-60, per 100 pounds, \$19.50.

### Zinc.

The zinc market is still firm and unchanged at 6½ cents St. Louis, and 35 points higher in New York.

Zinc sheets have been advanced from 7½ to 7¾ cents a pound, f. o. b. mills, with 8 per cent discount for car lots and larger.

This is the first price change since the last week in March.

Joplin advices state that buyers of zinc ores would not enter the market at the advanced prices until late in the past week when they capitulated.

In Chicago zinc in slabs increased from \$6.60 per hundred pounds to \$6.95 per hundred pounds.

#### *Sheets.*

The sheet industry is running at considerably less than capacity, at least 25 per cent less, chiefly on account of supplies of coal and steel being limited.

The steel difficulty seems to be felt approximately as much by sheet mills that make their steel as by mills that buy it.

Those that make their steel must pro-rate their output to their different departments and can not give sheet departments an unlimited supply.

Some lines of consumption are bringing greater pressure to bear on sheet mills to secure deliveries and on the whole there appears to be quite a strong situation.

Thus far it does not appear that consumption of sheets has been materially retarded by the scarcity of coal.

Shipments of sheets are not good at some points, on account of scarcity of cars.

The condition appears to be due not so much to railroads being unable to function as to box cars in particular being scarce.

This condition in box cars appears nearly every year at about this time.

Bad order cars are of course common, and some mills are repairing cars offered them in order to make them serviceable.

At some mills shipments are interfered with by labor shortage in the shipping departments.

There is a little scarcity of hot mill labor, but more of shipping labor.

During the past week the leading interest operated somewhat more than 70 per cent of its sheet mills, and seems likely to do about 70 per cent this week.

Even counting on a higher rate of operation the company would be

sold up on sheets for more than two months.

#### *Pig Iron.*

According to the weekly report of the Matthew Addy Company, Cincinnati, Ohio, the coal and railroad strikes, are having a telling effect on the pig iron market.

There is a demand for spot shipments of pig iron that apparently can not be satisfied.

The announced intention of the Government to make priority regulations of car and coal supply will naturally only add to the difficulties of shipping pig iron quickly.

All over the country furnaces are banking because they can not secure a supply of coke.

The uncertainty of securing their future coke makes them unwilling to sell iron for delivery ahead.

## *The Railroad Strike Is Slowing Down the Production and Shipment of Steel Products.*

*The July Output of Steel Ingots Is Estimated at 2,600,000 Tons, or Some 400,000 Tons Short of the Production in June.*

THE railroad strike has done more damage to the iron and steel industry in three weeks than the coal strike did in 17 weeks.

Steel ingot production at the inception of the strike, April 1, was at the annual rate of about 35,000,000 tons, and despite the coal strike this rate was gradually increased until in June it reached 36,600,000 tons.

Since then, however, all of this gain has been lost, and more. And the pig iron industry is worse hit, more than 16 furnaces being forced to suspend during the past two weeks.

Notwithstanding these hardships, the steel market was little changed throughout the week.

In Chicago iron bars advanced again, and are now quoted at 2 cents, while a further increase amounting to \$5 a ton was announced in rivets.

Seasonal summer dullness has invaded the steel market, but it is anticipated that with a continuation of the coal and transportation strikes the steel market will soon become dead.

If neither producer nor consumer is able to obtain fuel supplies and can not forecast conditions even a few days ahead there will be little disposition either to place or accept business.

Fabricated structural steel awards for July will probably be 50 per cent of steel capacity.

There was a further decline in steel demand but a distinct pickup in tinplate buying on account of the unexpected size of the crops and pack.

The composite finished steel price the past week stood at 2.22 cents a pounds as against 2.195 cents the previous week, and 2.723 cents at the inception of the coal strike.

Steel ingot production for the month of July is estimated at approximately 2,600,000 tons, or some 400,000 tons short of the June output, and was the smallest of any month since February.

Of this total, it is estimated that the leading interest produced 1,277,500 tons, which is at the rate of 70 per cent of capacity for the month.

The month of July came to a close with the average of the corporation slightly higher than this, but this week's developments will bring the rate down sharply.

In some quarters it is thought that the independents as a whole did not produce at much over 55 per cent of capacity in July, and they are now down to less than 50 per cent.

Pig iron production at the beginning of July was at a daily rate of almost 82,000 tons, and at the close it had dropped to something like 70,000 tons daily, and since then, with five or six more stacks down, the rate is much lower.

# Current Hardware and Metal Prices.

**AMERICAN ARTISAN AND HARDWARE RECORD** is the only publication containing Western Hardware and Metal prices corrected weekly.

## METALS

### PIG IRON.

Chicago Foundry	\$24.00 to \$25.00
Southern Fdy. No. 2	24.00 to 26.00
Lake Sup. Charcoal	31.65
Malleable	24.00 to 25.00

### FIRST QUALITY BRIGHT TIN PLATES.

	Per Box
IC	14x20 112 sheets \$10.00
IX	14x20..... 11 25
XXX	14x20..... 12 00
XXXX	14x20..... 13 90
XXXXX	14x20..... 15 25
IC	20x28..... 20 00
IX	20x28..... 22 50
XXX	20x28..... 25 20
XXXX	20x28..... 27 30
XXXXX	20x28..... 30 50

### COKE PLATES.

Cokes, 180 lbs...	20x28 \$11.50
Cokes, 200 lbs...	20x28 12.00
Cokes, 214 lbs...IC	20x28 12.35
Cokes, 270 lbs...IX	20x28 14.10

### BLUE ANNEALED SHEETS.

Base .....per 100 lbs. \$3.75

### ONE PASS COLD ROLLED BLACK.

No. 18-20.....per 100 lbs.	\$4.25
No. 22-24.....per 100 lbs.	4.30
No. 26.....per 100 lbs.	4.35
No. 27.....per 100 lbs.	4.40
No. 28.....per 100 lbs.	4.45
No. 29.....per 100 lbs.	4.55

### GALVANIZED.

No. 16.....per 100 lbs.	\$4.70
No. 18-20.....per 100 lbs.	4.85
No. 22-24.....per 100 lbs.	5.00
No. 26.....per 100 lbs.	5.15
No. 27.....per 100 lbs.	5.20
No. 28.....per 100 lbs.	5.45
No. 30.....per 100 lbs.	5.95

### BAR SOLDER.

Warranted.	
50-50	.....per 100 lbs. \$22.25
Commercial.	
45-55	.....per 100 lbs. 20.75
Plumbers	....per 100 lbs. 19.50

### ZINC.

In Slabs ..... 6.95

### SHEET ZINC.

Cask lots, stock..... 8% c  
Less than cask lots..... 9% c

### COPPER.

Copper Sheets, base..... 20% c

### LEAD.

American Pig ..... 6.05  
Bar ..... 6.80

### Sheet.

Full coils ....per 100 lbs. 9.00  
Cut coils ....per 100 lbs. 9.25

### TIN.

Pig Tin .....per lb. 25% c  
Bar tin ..... 37% c

## HARDWARE, SHEET METAL SUPPLIES, WARM AIR HEATER FITTINGS AND ACCESSORIES.

### ADZES.

Coopers'. Barton's ..... Net  
White's ..... Net

### AMMUNITION.

Shells, Loaded, Peters.  
Loaded with Black Powder 18%

Loaded with Smokeless Powder ..... 18%

Winchester.

Smokeless Repeater Grade ..... 20 & 4%

Smokeless Leader Grade ..... 20 & 4%

Black Powder ..... 20 & 4%

U. M. C.

Nitro Club ..... 20 & 4%

Arrow Club ..... 20 & 4%

New Club ..... 20 & 4%

### GUN WADS—per 1000.

Winchester 7-8 gauge 10&7/16%

" 9-10 gauge 10&7/16%

" 11-12 gauge 10&7/16%

ASBESTOS.

Paper up to 1/16..... 6c per lb.

Rollboard ..... 6 1/4c per lb.

Millboard 3/32 to 1/4 ..... 6c per lb.

Corrugated Paper (250 sq. ft. to roll)..... \$6.00 per roll

AUGERS

Boring Machine..... 40&10%

Carpenter's Nut ..... 50%

Hollow.

Bonney's.....per doz. \$30.00

Post Hole.

Iwan's Post Hole and Well

..... 20 and 5%

Vaughan's, 4 to 9 in. without handles per doz. \$14.00

AWLS.

Brad.

No. 3 Handled.....per doz. \$9.65

No. 1050 Handled ..... 1.40

Patent ass't'd, 1 to 4 " 35

Harness.

Common .....per doz. \$1.05

Patent ..... 1.00

Peg.

Shouldered ..... " 1.60

Patented ..... " 75

Scratch.

No. 18, Socket Handled .....per doz. \$2.50

No. 344 Goodell-Pratt, list less..... 35-40%

No. 7 Stanley.....per doz. \$2.25

### AXES.

First Quality, Single

Bitted (unhandled), 3 to 4 lb. per doz..... \$10.50

Good Quality, Single

Bitted, same weight, per doz. ..... 9.50

BALANCES, SPRING.

Universal.

Sight Spring.....List less 25%

Straight ..... List less 25%

RARS, WRECKING.

V. & B. No. 12..... \$0.34

V. & B. No. 24..... 0.43

V. & B. No. 324..... 0.57

V. & B. No. 30..... 0.48

V. & B. No. 330..... 0.63

### BEVEL, TEE.

Stanley's Rosewood handle, new

list ..... Nets

Stanley iron handle.....Nets

### BINDING CLOTH.

Steel ..... 55%

Brass ..... 40%

Brass, plated ..... 50%

### BITS.

Auger. Jennings Pattern..... Net

Ford Car ..... 25% off

Ford's Ship ..... 25% off

Irwin ..... 25%

Russell Jennings.....less 10%

Clark's Expansive.....33 1/3%

Center ..... 10%

### COUNTERSINK.

American Smallhead..... 1.75  
" Rose ..... 2.00  
" Flat ..... 1.40

### DOWEL.

Russel Jennings .....plus 20%

### GIMLET.

Standard Double Cut Gross \$8.40

### NAIL METAL.

Cut ..... Gross \$4.00-\$5.00

### REAMER.

Standard Square.....Doz. \$2.50

### SCREW DRIVER.

No. 1 Common.....Each 18c

No. 2 Stanley.....Each 70c

### BLADES, SAW.

Wood. Atkins 30-in.

Nos. ..... 6 40 26

..... \$3.90 \$2.45 \$5.40

### DISTON.

30-in. Nos. ..... 6 66 26

..... \$9.45 \$10.05 \$9.45

### BLOCKS.

Wooden ..... 20%

Patent ..... 20%

### BLOW TORCHES (See Firepots).

### BOARDS.

Stove. Per. Doz.

26x26, wood lined..... \$14.45

28x28, " ..... 16.50

30x30, " ..... 19.00

26x26, paper lined..... \$8.15

28x28, " ..... 9.10

30x30, " ..... 10.80

### WASH.

No. 760, Banner Globe

(single) .....per doz. \$5.25

No. 652, Banner Globe

(single) .....per doz. 6.75

No. 801, Brass King, per doz. \$8.35

No. 860, Single—Plain Pump ..... 6.25

### BOLTS.

Carriage, Machine, etc.

Carriage, cut thread, %x6

and sizes smaller and shorter ..... 60%

Carriage sizes, larger and longer than %x6..... 50 & 5%

Machine, %x6 and sizes smaller and shorter ..... 60 & 10%

Machine, sizes larger and longer than %x1, 50-10 & 5%

Stove ..... 75%

### MORTISE, DOOR.

Gem, Iron ..... 5%

Gem, bronze plated ..... 5%

### BARREL.

Cast ..... Net

Wrought, bronzed ..... "

### FLASH.

Wrought ..... Net

### SPRING.

Wrought ..... "

### WROUGHT, HEAVY

Wrought, heavy ..... "

### SQUARE.

Wrought ..... "

### BOXES.

Mail. No. 2. 2 4 10

Per doz. \$18.00 \$23.00 \$29.00

### CARRIAGE, RATCHET.

Goodell-Pratt No. 408..... \$4.60

No. 410 ..... 4.80

" No. 412 ..... 5.00

V. & B. No. 444 8 in. ..... 4.65

V. & B. No. 333 8 in. ..... 4.20

V. & B. No. 222 8 in. ..... 4.00

V. & B. No. 111 8 in. ..... 3.50

V. & B. No. 11 8 in. ..... 3.05

### BURRS, RIVETING.

Copper Burrs only ..... 55%

Tinners' Iron Burrs only ..... Net

### BUTTS.

Steel, antique copper or dull brass finish—case lots—

3 1/4x3 1/4...per dozen pairs \$2.75

4x4...per dozen pairs \$3.50

Heavy Bevel steel inside sets, case lots—

..... per dozen sets 7.50

Steel bit keyed front door sets, each ..... 1.80